SUZUKI

# VZR1800/Z

## SUPPLEMENTARY SERVICE MANUAL

**USE THIS MANUAL WITH:**
**VZR1800 SERVICE MANUAL (99500-39293-01E)**

99501-39590-01E

# VZR1800/ZL0 ('10-MODEL)

*This manual describes service specifications, service data and servicing procedures which differ from those of the VZR1800/NK9 ('09-model).*

*NOTE:*
*Please refer to the VZR1800/NK9 ('09-model) service manual for details which are not given in this manual.*

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# VZR1800/ZL0 ('10-MODEL)

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## COUNTRY AND AREA CODES

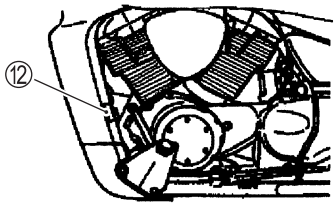
The following codes stand for the applicable country(-ies) and area(-s).

| MODEL | CODE | COUNTRY or AREA | EFFECTIVE FRAME NO. |
|---|---|---|---|
| VZR1800 | E-02 | U.K. | JSCA111200100648 – |
| | E-03 | U.S.A. (Except for california) | JS1VY53A A2100001 – |
| | E-19 | E.U. | JS1CA111100108980 – |
| | E-19 (UF) | E.U. | JS1CA211100101200 – |
| | E-24 | Australia | JS1CA121300102986 – |
| | E-28 | Canada | JS1VY53A A2100001 – |
| | E-33 | California (U.S.A.) | JS1VY53A A2100001 – |
| | E-51 | Korea | JS1CA1117A0100001 – |
| VZR1800Z | E-02 | U.K. | JSCA111200100648 – |
| | E-03 | U.S.A. (Except for california) | JS1VY53A A2100001 – |
| | E-19 | E.U. | JS1CA111100108982 – |
| | E-19 (UF) | E.U. | JS1CA211100101200 – |
| | E-24 | Australia | JS1CA121300102986 – |
| | E-28 | Canada | JS1VY53A A2100001 – |
| | E-33 | California (U.S.A.) | JS1VY53A A2100001 – |

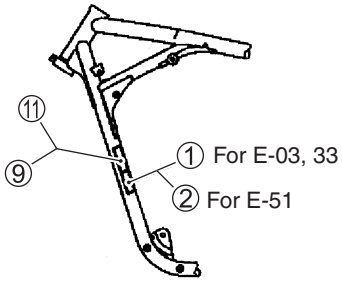
# INFORMATION LABELS

| | VZR1800 | VZR1800UF |
|---|---|---|
| ① Noise label | A (For E-03, 24, 33) | |
| ② Information label | A (For E-03, 28, 33, 51) | |
| ③ Vacuum hose routing label | A (For E-33) | |
| ④ Fuel information label | A | A |
| ⑤ Manual notice label | A (For E-03, 33) | |
| ⑥ Tire information label | A | A |
| ⑦ General warning label | A | A |
| ⑧ ICES Canada label | A (For E-28) | |
| ⑨ I.D. plate | A (For E-02, 19, 24) | A |
| ⑩ E-19 I.D. label | | A |
| ⑪ Safety plate | A (For E-03, 28, 33, 51) | |
| ⑫ Gearshift label | A | A |

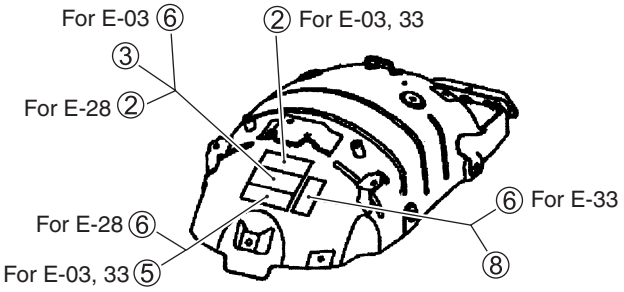
A: Attached



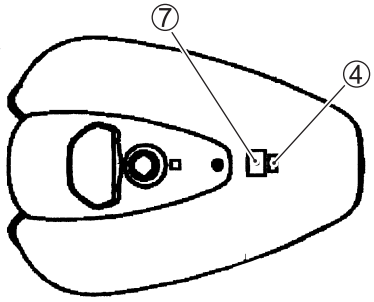

Engine (Left side)



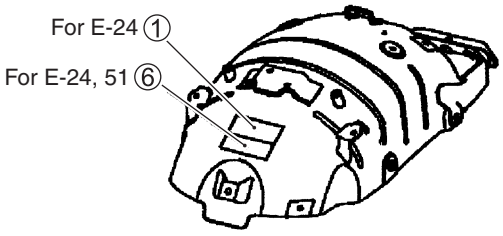

Frame pipe (Left side)



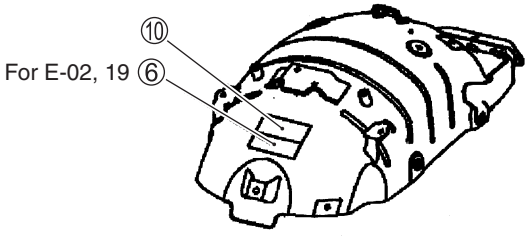

Rear fender (For E-03, 28, 33)




Fuel tank




Rear fender (For E-24, 51)




Rear fender (For E-02, 19)

# SPECIFICATIONS

*NOTE:*
*Any differences between the VZR1800/NK9 ('09-model) and VZR1800/ZL0 ('10-model) in specifications are indicated with an asterisk mark (*).*

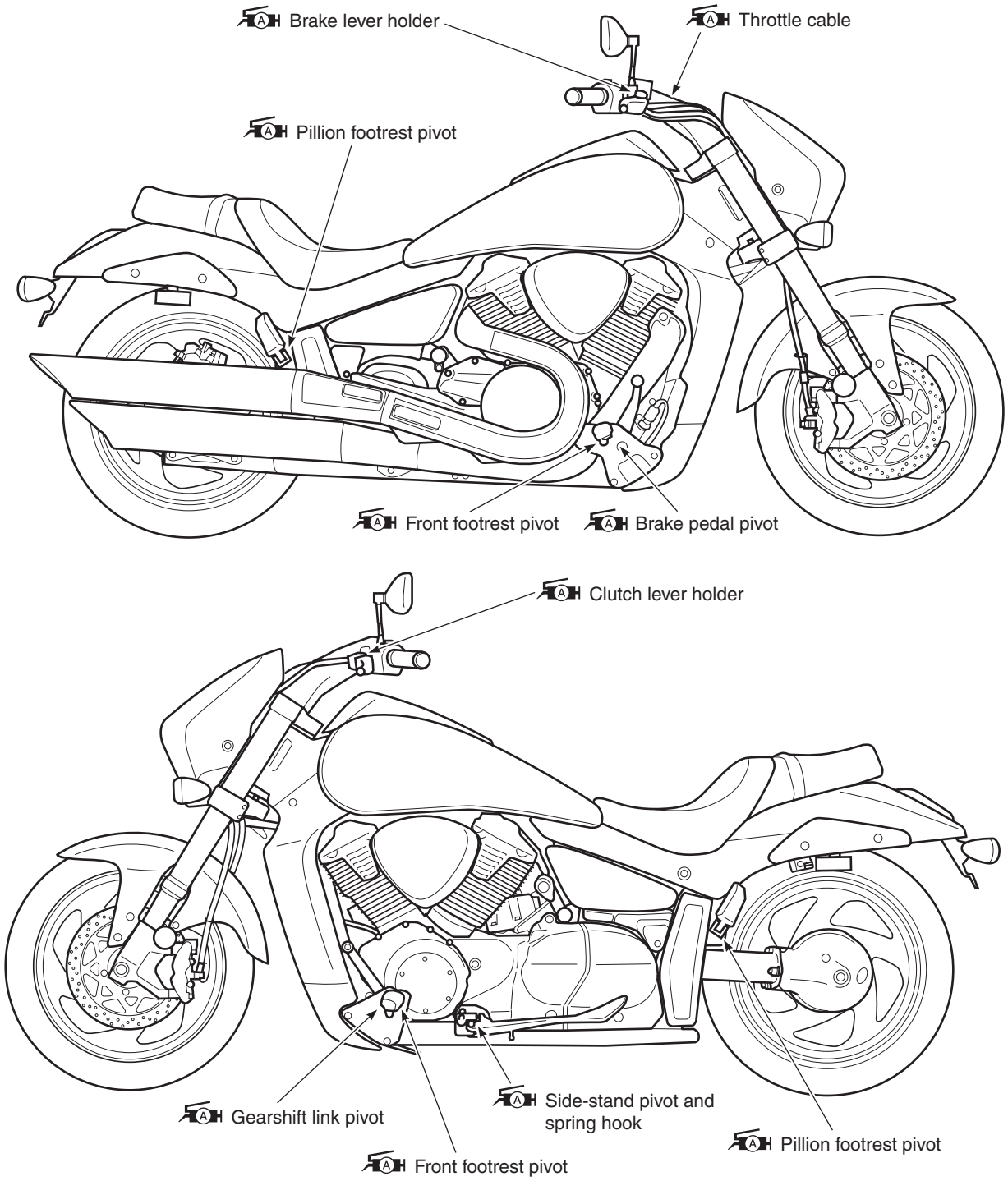
## DIMENSIONS AND CURB MASS

| | | | |
|---|---|---|---|
| Overall length | * | 2 450 mm (96.5 in) | E-03, 28, 33 |
| | | 2 480 mm (97.6 in) | Others |
| Overall width | | 875 mm (34.4 in) | |
| Overall height | * | 1 130 mm (44.5 in) | |
| Wheelbase | | 1 710 mm (67.3 in) | |
| Ground clearance | | 130 mm (5.1 in) | |
| Seat height | | 705 mm (27.8 in) | |
| Curb mass | | 347 kg (764 lbs) | |

These specifications are subject to change without notice.

## LUBRICATION POINTS

Proper lubrication is important for smooth operation and long life of each working part of the motorcycle. Major lubrication points are indicated below.




*NOTE:*

** Before lubricating each part, clean off any rusty spots and wipe off any grease, oil, dirt or grime.*

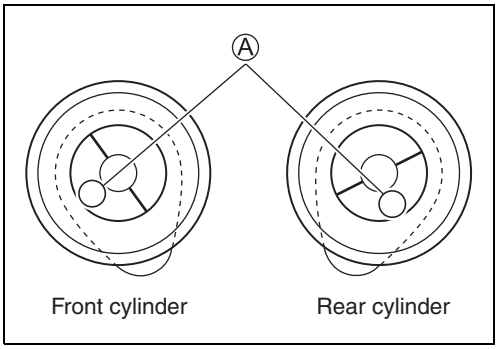
** Lubricate exposed parts which are subject to rust, with a rust preventative spray whenever the motorcycle has been operated under wet or rainy conditions.*

# ENGINE COMPONENTS INSPECTION AND SERVICING

## CAMSHAFT

Each exhaust camshaft I.D. code Ⓐ has been changed which is stamped on the camshaft end.

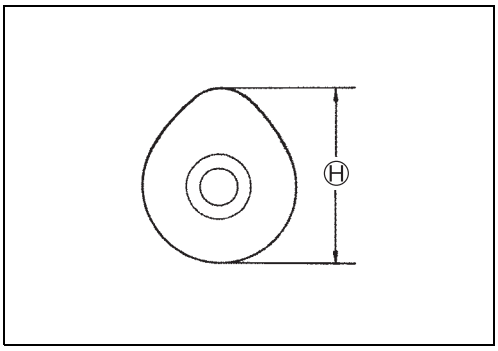
| | Front cylinder | Rear cylinder |
|---|---|---|
| I.D. code Ⓐ | F | H |




### CAM WEAR

**DATA Cam height Ⓗ**
**Service Limit (EX.): 40.18 mm (1.582 in)**

**TOOL 09900-20202: Micrometer (25 – 50 mm)**



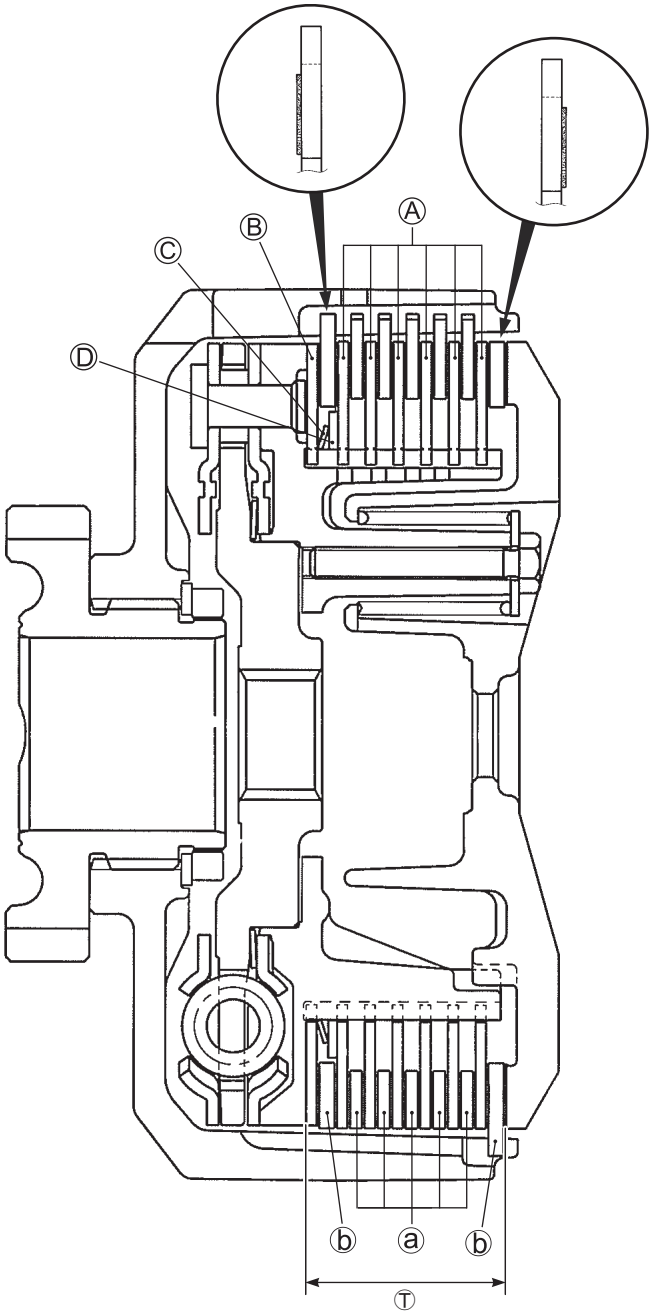
# CLUTCH

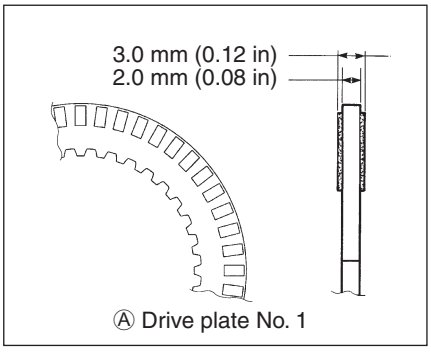
## CONSTRUCTION

DRIVE PLATE:
Ⓐ Drive plate No. 1 .....6 pcs.
Ⓑ Drive plate No. 2
( Drive plate No. 3
Drive plate No. 4 ) .....Any 1 pc. *
Ⓒ Spring washer
Ⓓ Spring washer seat

DRIVEN PLATE:
ⓐ Driven plate No. 1 .....5 pcs.
ⓑ Driven plate No. 2 .....2 pcs.

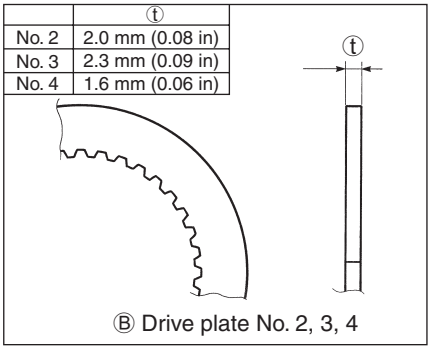
NOTE:
* Basically in this motorcycle, the drive plate No. 2 is installed as shown Ⓑ. Instead of the No. 2, however, sometimes the drive plate No. 3 or No. 4 may have been installed at the factory for the purpose of fine adjusting the overall thickness Ⓣ of clutch plates.
When replacing the plate Ⓑ in the aftermarket, always use the drive plate No. 2.



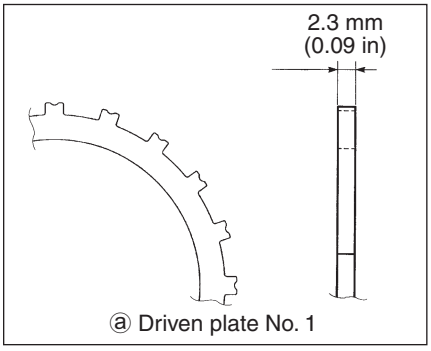



Ⓐ Drive plate No. 1

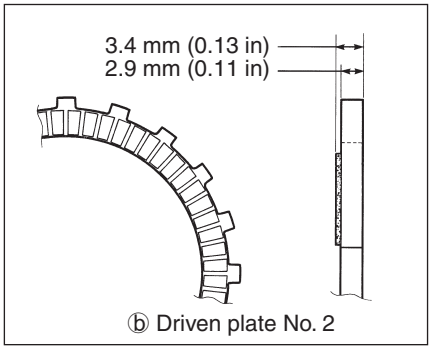
| | ⓣ |
|---|---|
| No. 2 | 2.0 mm (0.08 in) |
| No. 3 | 2.3 mm (0.09 in) |
| No. 4 | 1.6 mm (0.06 in) |



Ⓑ Drive plate No. 2, 3, 4



ⓐ Driven plate No. 1



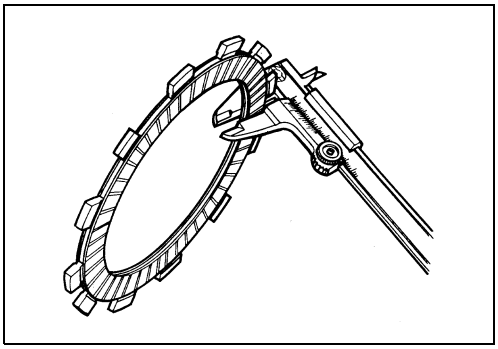
ⓑ Driven plate No. 2

## INSPECTION

### CLUTCH PLATE THICKNESS

*NOTE:*
*Wipe off engine oil from the clutch plates with a clean rag.*

- Measure the thickness of drive and driven plates with a vernier calipers. If each plate is not within the service limit or standard range, replace it with a new one.



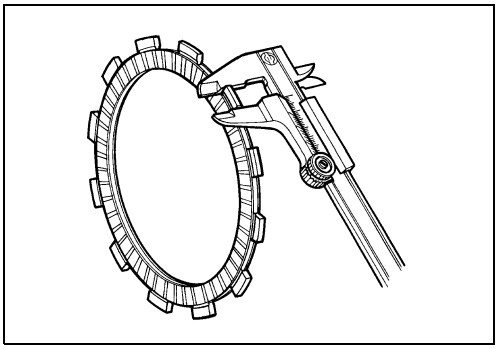
**DATA Drive plate thickness**
**Service limit (No. 1): 2.62 mm (0.103 in)**

**DATA Driven plate thickness**
**Service limit (No. 2): 3.17 mm (0.125 in)**

**TOOL 09900-20102: Vernier calipers (200 mm)**

### DRIVEN PLATE CLAW WIDTH

- Measure the claw width of driven plates with a vernier calipers.
- Replace the driven plates found to have worn down to the limit.



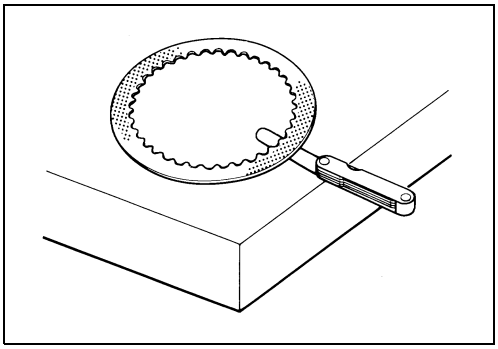
**DATA Driven plate claw width**
**Service limit (No. 1): 7.05 mm (0.278 in)**
**Service limit (No. 2): 7.16 mm (0.282 in)**

**TOOL 09900-20102: Vernier calipers (200 mm)**

### CLUTCH PLATE DISTORTION

*NOTE:*
*Wipe off engine oil from the clutch drive and driven plates with a clean rag.*

- Measure each clutch plate for distortion with a thickness gauge and surface plate.
- Replace clutch plates which exceed the limit.

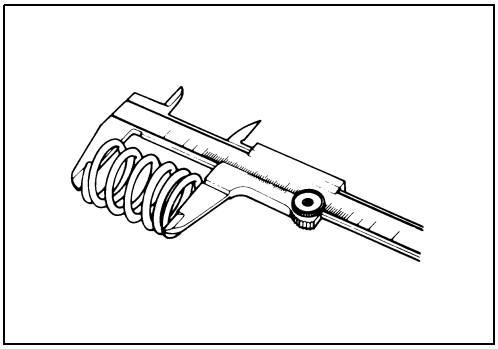


**DATA Clutch plate distortion**
**(drive plate No. 2 – No.4 and driven plate No. 1)**
**Service Limit: 0.10 mm (0.004 in)**

**TOOL 09900-20803: Thickness gauge**

### CLUTCH SPRING FREE LENGTH

- Measure the free length of each coil spring with a vernier calipers, and compare the length with the specified limit. Replace all the springs if any spring is not within the limit.

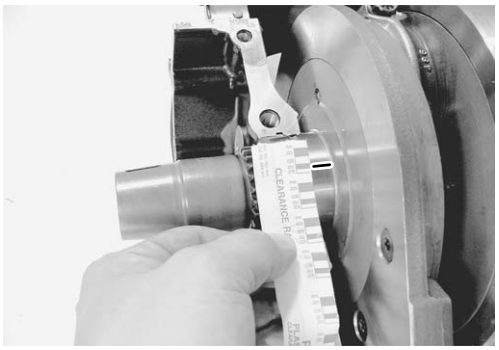


**DATA Clutch spring free length**
**Service Limit: 52.4 mm (2.06 in)**

**TOOL 09900-20102: Vernier calipers (200 mm)**

# CRANKSHAFT JOURNAL BEARING

## SELECTION

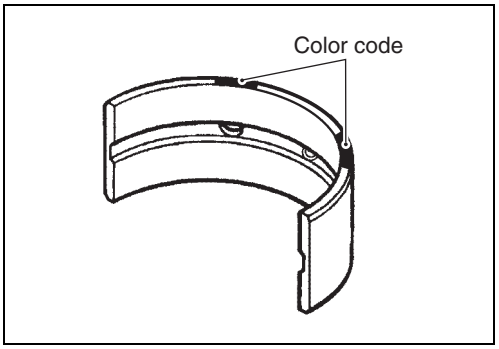


**DATA Crankshaft journal oil clearance:**
**Standard: 0.010 – 0.028 mm (0.0004 – 0.0011 in)**
**Service Limit: 0.080 mm (0.0031 in)**

**TOOL 09900-22301: Plastigauge (0.025 – 0.076 mm)**

**DATA Bearing thickness specification**

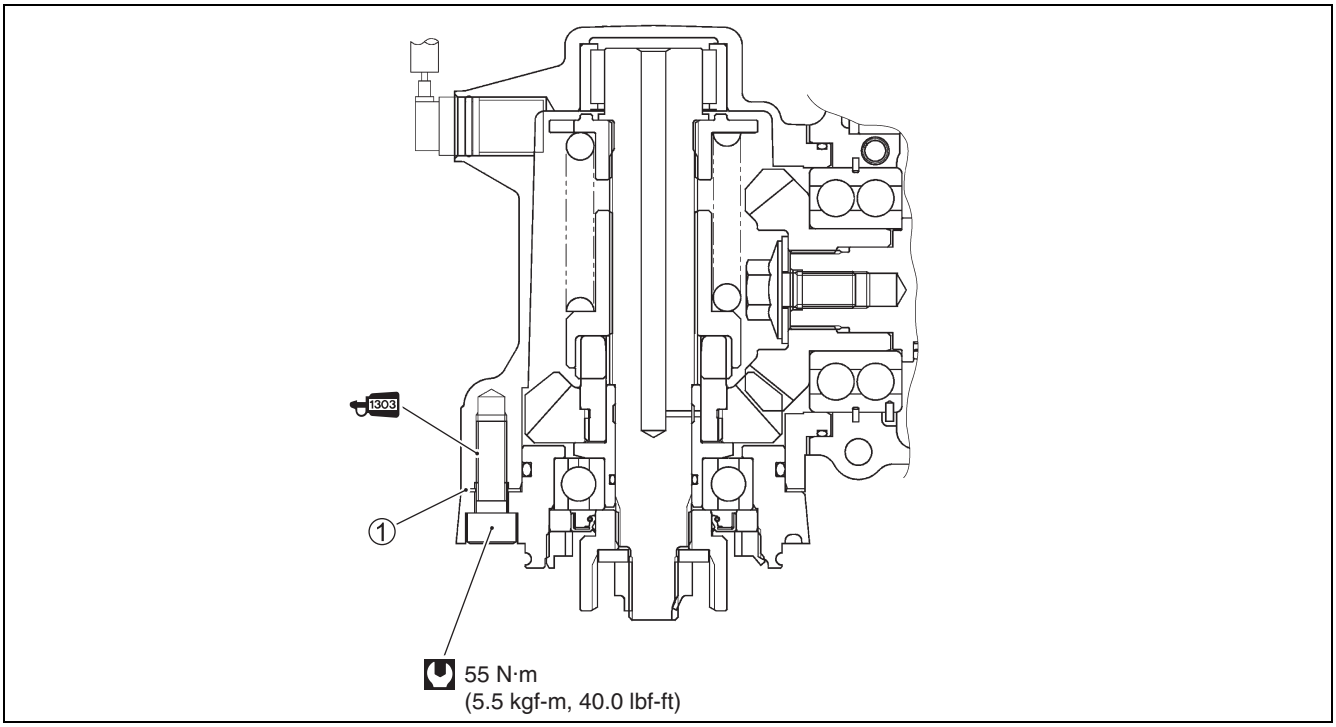
| Color (Part No.) | Thickness |
|---|---|
| Green<br>(12229-48G10-0A0) | 1.992 – 1.995 mm<br>(0.0784 – 0.0785 in) |
| Black<br>(12229-48G10-0B0) | 1.995 – 1.998 mm<br>(0.0785 – 0.0787 in) |
| Brown<br>(12229-48G10-0C0) | 1.998 – 2.001 mm<br>(0.0787 – 0.0788 in) |
| Yellow<br>(12229-48G10-0D0) | 2.001 – 2.004 mm<br>(0.0788 – 0.0789 in) |
| Blue<br>(12229-48G10-0E0) | 2.004 – 2.007 mm<br>(0.0789 – 0.0790 in) |



# DRIVELINE/AXLE

## SECONDARY GEAR SHIMS

### ADJUSTMENT



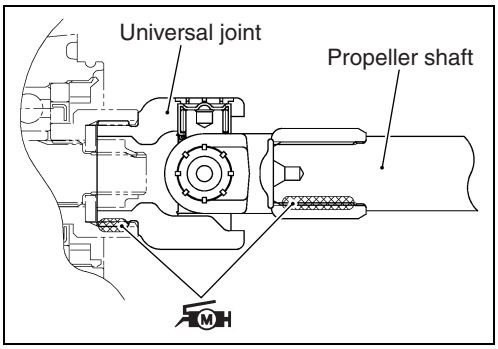

**Adjust backlash and tooth contact by selecting shims. (Use two pieces of shims.)**
**Shim ① size table**

| Part number | Thickness |
|---|---|
| 24945-48G10-030 | 0.30 mm (0.012 in) |
| 24945-48G10-035 | 0.35 mm (0.014 in) |
| 24945-48G10-040 | 0.40 mm (0.016 in) |
| 24945-48G10-050 | 0.50 mm (0.020 in) |
| 24945-48G10-060 | 0.60 mm (0.024 in) |

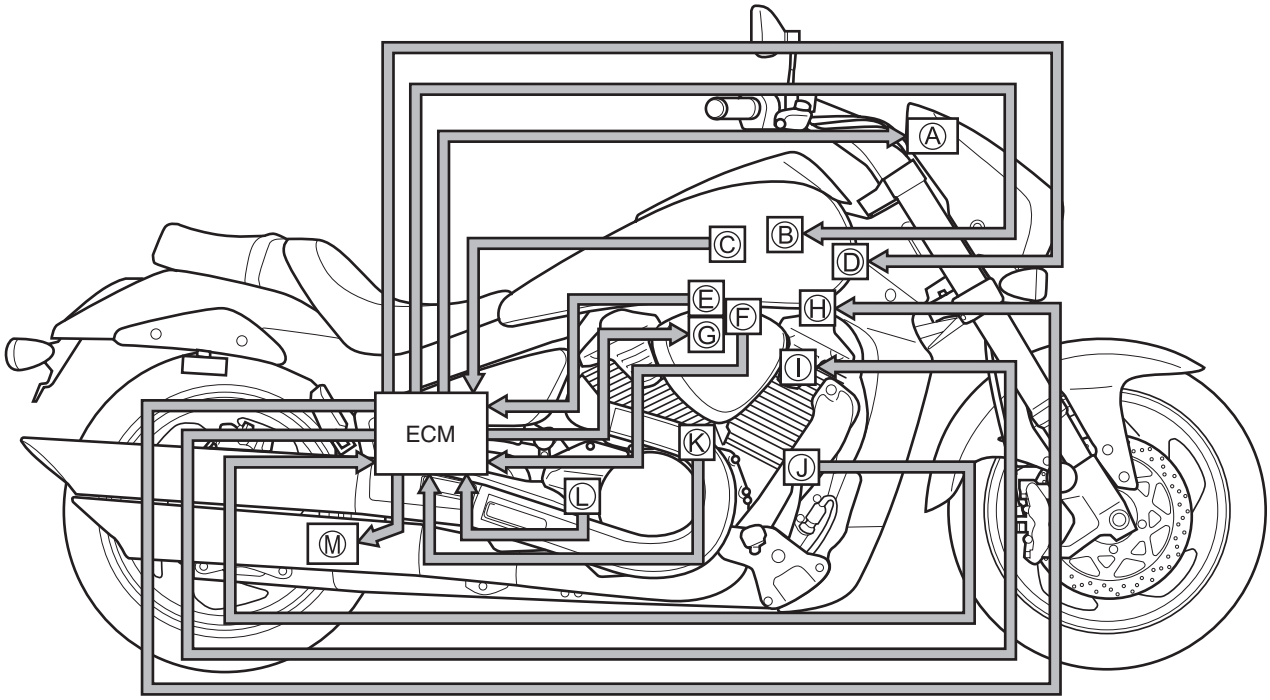
**The shims ① are available as a set (24945-48820).**

## UNIVERSAL JOINT INSTALLATION

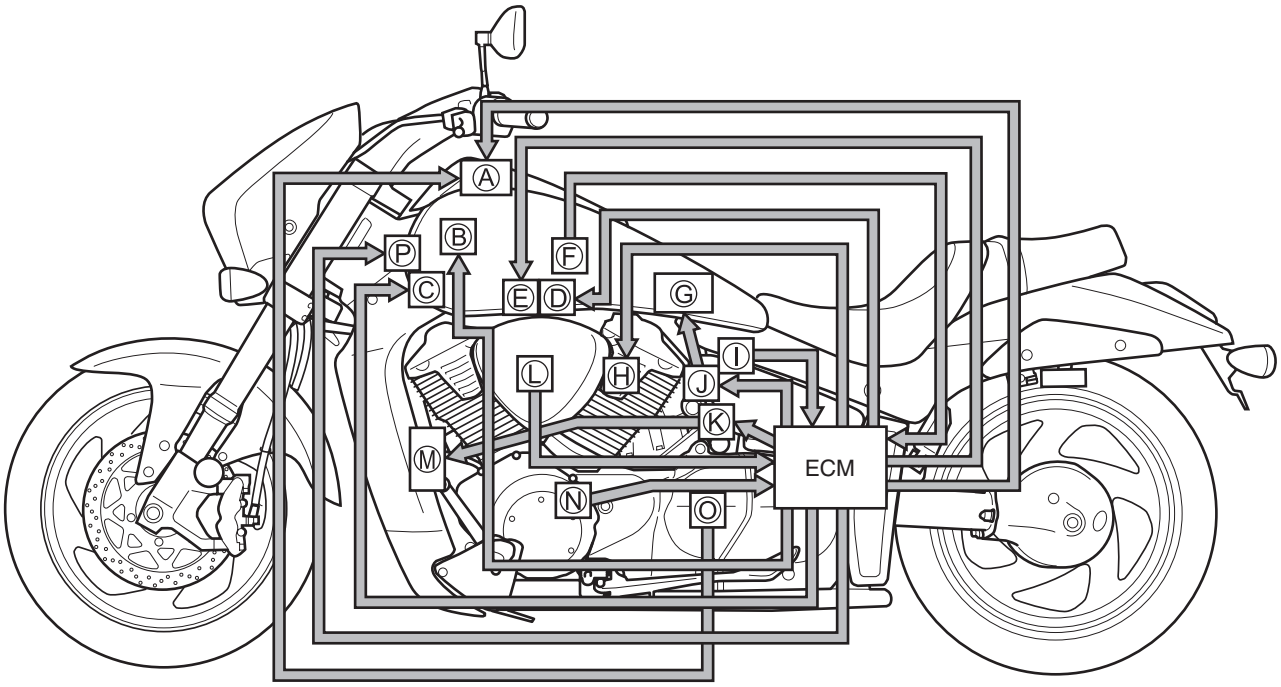
- Apply Lithium Base Molybdenum grease (NLGI#2) to the universal joint spline.



# FI SYSTEM
## FI SYSTEM PARTS LOCATION

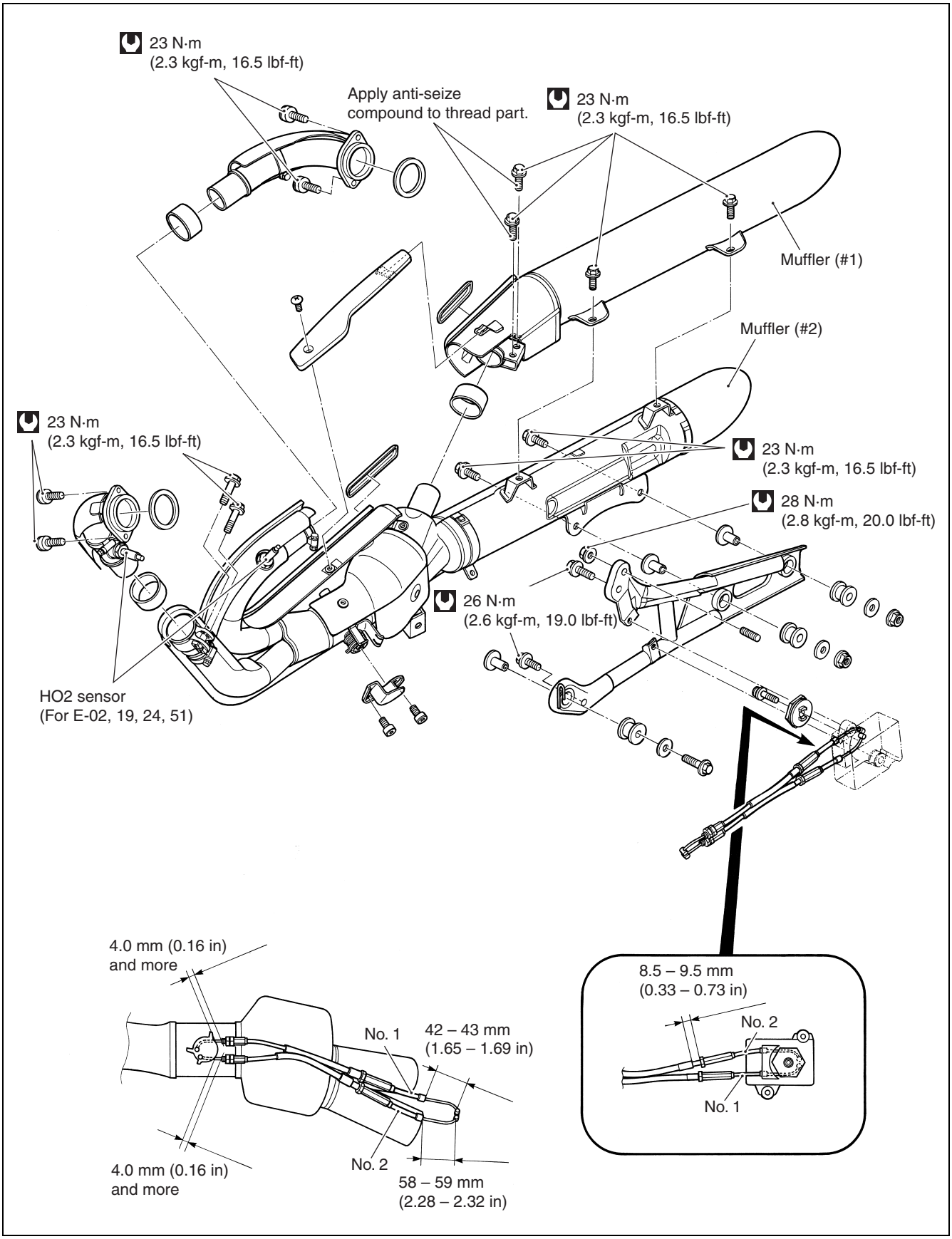



Ⓐ Tachometer/gear position
Ⓒ Intake air pressure sensor #2 (IAPS)
Ⓔ Secondary throttle position sensor (STPS)
Ⓖ Secondary throttle valve actuator (STVA)
Ⓘ Ignition coil/plug cap #2
Ⓚ O2 sensor #1 (O2S) [For E-02, 19, 24, 51]
Ⓜ Exhaust control valve actuator (EXCVA)
Ⓑ ISC valve (ISCV)
Ⓓ Ignition coil #1 (IG COIL)
Ⓕ Throttle position sensor (TPS)
Ⓗ PAIR control solenoid valve
Ⓙ O2 sensor #2 (O2S) [For E-02, 19, 24, 51]
Ⓛ Gear position switch

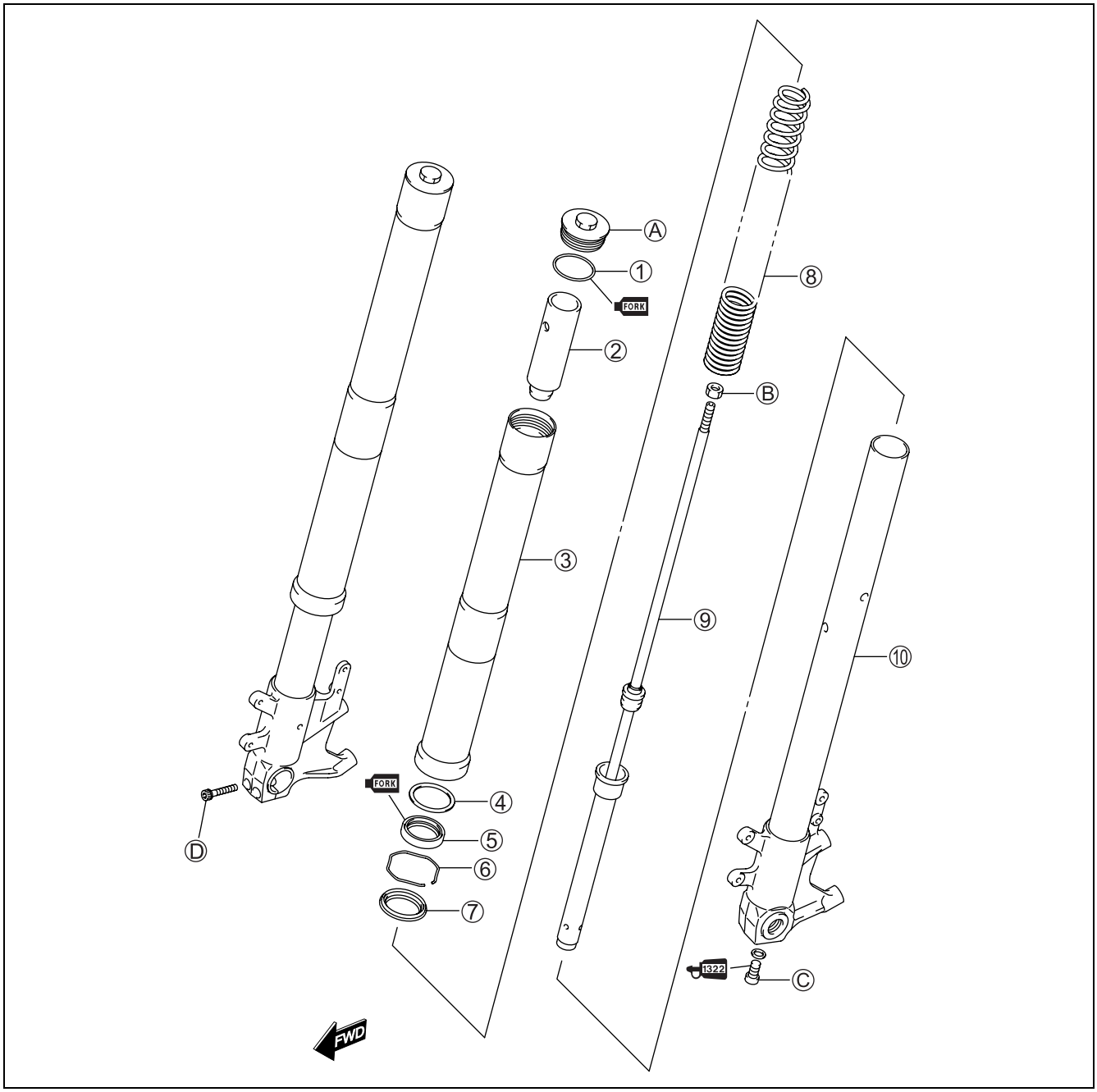



Ⓐ Speedometer
Ⓑ Intake air temperature sensor (IATS)
Ⓒ PAIR control solenoid valve
Ⓓ Fuel injector #1
Ⓔ Fuel injector #2
Ⓕ Intake air pressure sensor #1 (IAPS)
Ⓖ Fuel pump
Ⓗ Ignition coil/plug cap #1
Ⓘ Tip-over sensor (TOS)
Ⓙ Fuel pump relay (FP RELAY)
Ⓚ Cooling fan relay
Ⓛ Engine coolant temperature sensor (ECTS)
Ⓜ Cooling fan
Ⓝ Crankshaft position sensor (CKPS)
Ⓞ Speedometer sensor
Ⓟ Ignition coil #2 (IG COIL)

# EXHAUST SYSTEM
## CONSTRUCTION



# FRONT FORK
## CONSTRUCTION



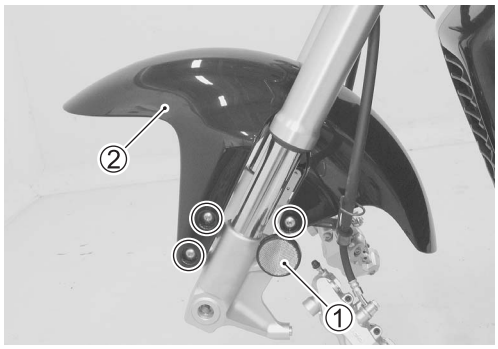

| | | | | | |
|---|---|---|---|---|---|
| ① | O-ring | ⑥ | Oil seal stopper ring | Ⓐ | Front fork cap bolt |
| ② | Spacer | ⑦ | Dust seal | Ⓑ | Inner rod lock nut |
| ③ | Outer tube | ⑧ | Spring | Ⓒ | Damper rod bolt |
| ④ | Oil seal retainer | ⑨ | Inner rod/Damper rod (cartridge) | Ⓓ | Front axle pinch bolt |
| ⑤ | Oil seal | ⑩ | Inner tube | | |

| ITEM | N·m | kgf-m | lbf-ft |
|---|---|---|---|
| Ⓐ | 23 | 2.3 | 16.5 |
| Ⓑ | 15 | 1.5 | 11.0 |

| ITEM | N·m | kgf-m | lbf-ft |
|---|---|---|---|
| Ⓒ | 23 | 2.3 | 16.5 |
| Ⓓ | 23 | 2.3 | 16.5 |

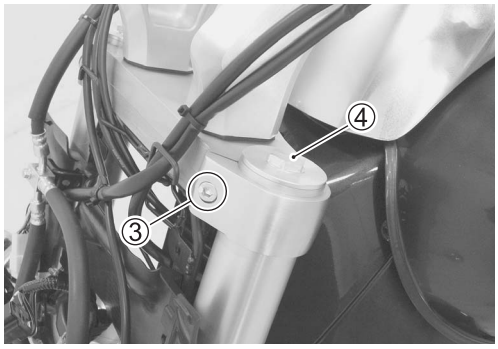
## REMOVAL AND DISASSEMBLY

- Remove the headlight housing assembly. (☞Page 29)
- Remove the front wheel. (☞VZR1800K6 9-9)
- Remove the front reflex refractor ①. (For E-03, 28, 33)
- Remove the bolts, left and right and front fender ②.



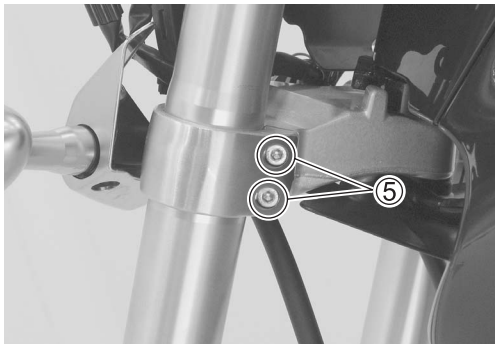

- Loosen the front fork upper clamp bolt ③.

*NOTE:*
*Slightly loosen the front fork cap bolts ④ before loosening the lower clamp bolts to facilitate later disassembly.*



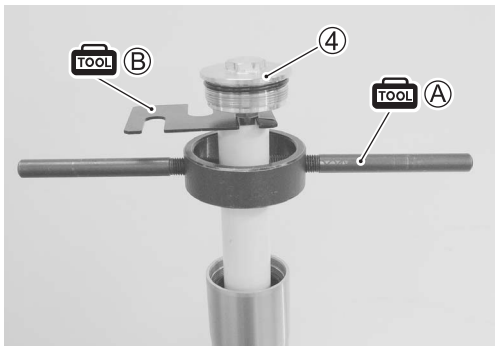

- Loosen the front fork lower clamp bolts ⑤.
- Remove the front fork.

*NOTE:*
*Hold the front fork by the hand to prevent sliding out of the steering stem.*

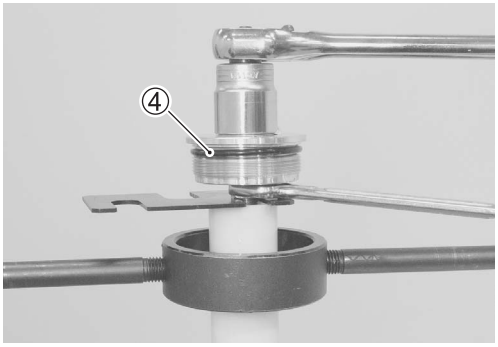



- Separate the front fork cap bolt ④ from the front fork outer tube.
- Compress the front fork spring with the special tool Ⓐ and insert the special tool Ⓑ between the lock nut and the spacer.

**TOOL 09940-94930: Front fork spacer holder Ⓐ**
**09940-94922: Front fork spring stopper plate Ⓑ (11 mm)**



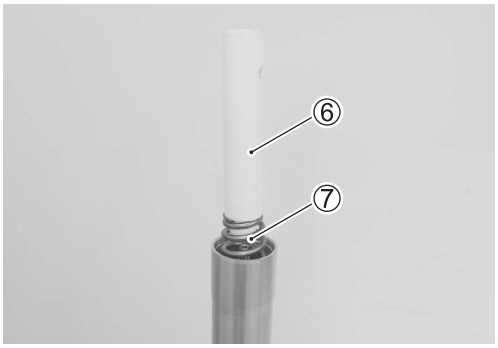
- Remove the front fork cap bolt ④ from the inner rod by loosening the lock nut.
- Remove the special tools.



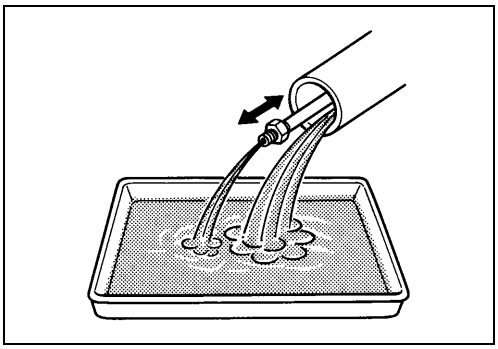

**CAUTION**

**After removing the front fork cap bolt ④, avoid holding the outer tube vertically by hand to prevent the inner tube from falling and damaged.**

- Remove the spacer ⑥ and spring ⑦.
- Remove the front axle pinch bolts. (For RH)




- Invert the front fork and stroke the inner rod several times to let out fork oil.
- Under the inverted condition of front fork, drain oil completely by holding the fork for a while.



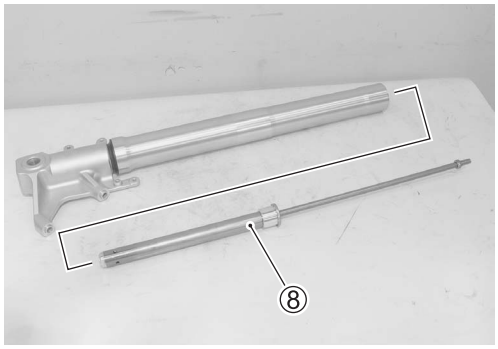
- Remove the damper rod bolt with the special tool.

**TOOL 09940-30221: Front fork cylinder holder**

• Remove the inner rod/damper rod (cartridge) ⑧.

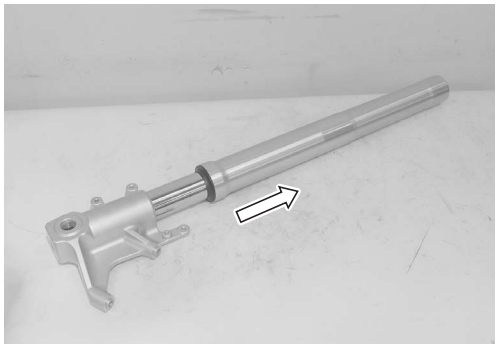
**CAUTION**

**Do not disassemble the inner rod/damper rod (cartridge).**




• Extract the outer tube from the inner tube.

*NOTE:*
*Be careful not to damage the "ANTI-FRICTION" metals.*



• Remove the dust seal ⑨ and oil seal stopper ring ⑩.

• Remove the oil seal with the special tool.

**TOOL 09913-50121: Oil seal remover**

**CAUTION**

**The removed oil seal must be replaced with a new one.**

• Remove the oil seal retainer ⑪.

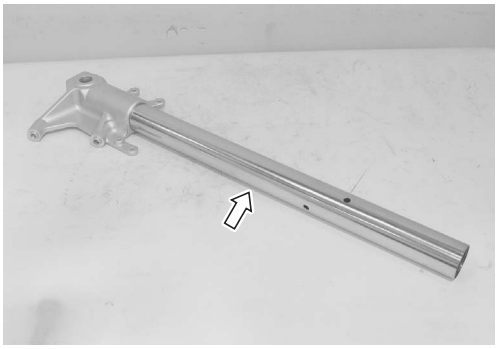
# INSPECTION

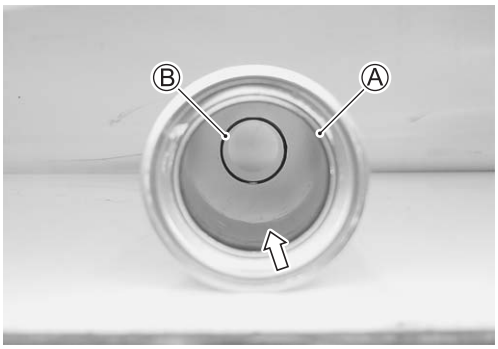
## INNER AND OUTER TUBES

- Inspect the inner tube outer surface and outer tube inner surface for scratches.
- Inspect the "ANTI-FRICTION" metal surfaces for scratches.
- If any defects are found, replace them with a new one.

**CAUTION**

**Do not remove the "ANTI-FRICTION" metal Ⓐ and Ⓑ.**

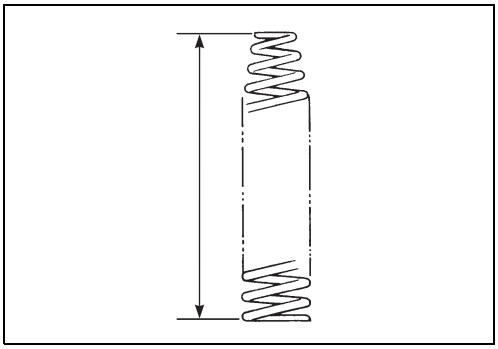





## FORK SPRING

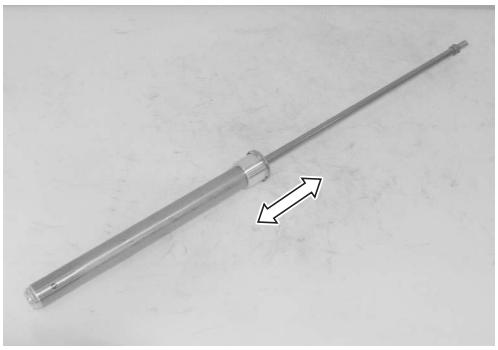
- Measure the fork spring free length.
- If it is shorter than the service limit, replace it with a new one.

**DATA** **Front fork spring free length:**
**Service Limit: 382 mm (15.0 in)**



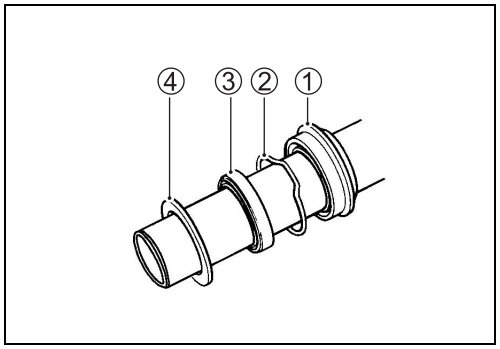
## DAMPER ROD

- Move the inner rod by hand to examine it for smoothness.
- If any defects are found, replace inner rod/damper rod (cartridge) with a new one.



## REASSEMBLY

Reassemble the front fork in the reverse order of disassembly. Pay attention to the following points:



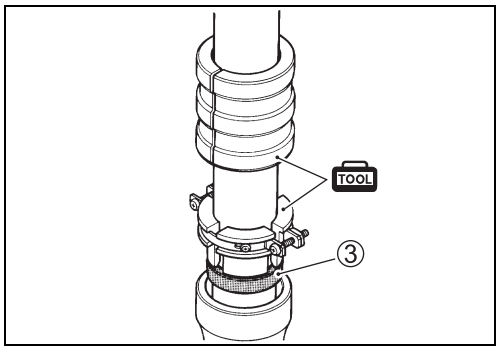

### OIL SEAL AND DUST SEAL

- Install the dust seal, oil seal stopper ring, oil seal and oil seal retainer onto the inner tube.

① Dust seal
② Oil seal stopper ring
③ Oil seal
④ Oil seal retainer

**CAUTION**

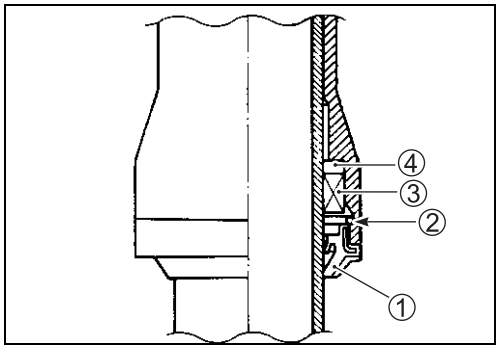
*** When installing the oil seal to outer tube, be careful not to damage the oil seal lip.**
*** Do not use solvents for washing to prevent oil seal damage.**
*** Apply fork oil to the Anti-friction metals and lip of the oil seal.**
*** Make sure that the oil seal stopper ring has been fitted securely.**




- Insert the inner tube into the outer tube and fit the oil seal and dust seal with the special tool.

**TOOL 09940-52861: Front fork oil seal installer**

*NOTE:*
*Stamped mark on the oil seal should face outside.*



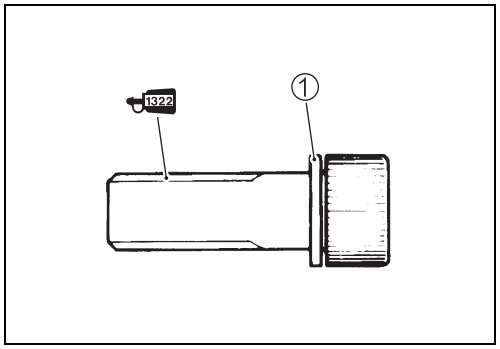

### DAMPER ROD BOLT

- Insert the inner rod/damper rod (cartridge) into the inner tube.
- Apply THREAD LOCK SUPER to the damper rod bolt.

**1322 99000-32110: THREAD LOCK SUPER "1322"**
**or equivalent**

**CAUTION**

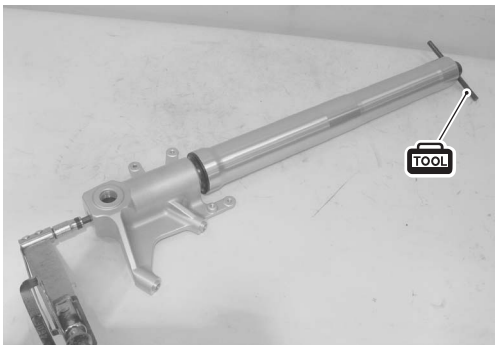
**Use a new damper rod bolt gasket ① to prevent oil leakage.**



• Tighten the damper rod bolt to the specified torque with the special tool.

**TOOL 09940-30221: Front fork cylinder holder**

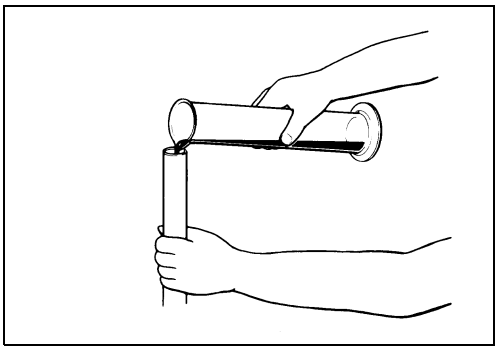
**Damper rod bolt: 23 N·m (2.3 kgf-m, 16.5 lbf-ft)**




**FORK OIL**

• Place the front fork vertically without spring.
• Compress it fully.
• Pour specified front fork oil up to the top level of the outer tube.

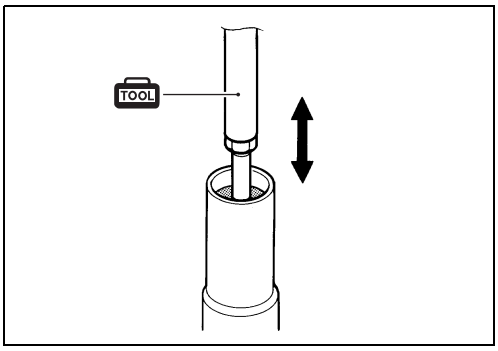
**FORK 99000-99044-L01: SUZUKI FORK OIL L01 or an equivalent fork oil**



• Move the inner rod slowly with the special tool ten times and more until no more bubbles come out from the oil.

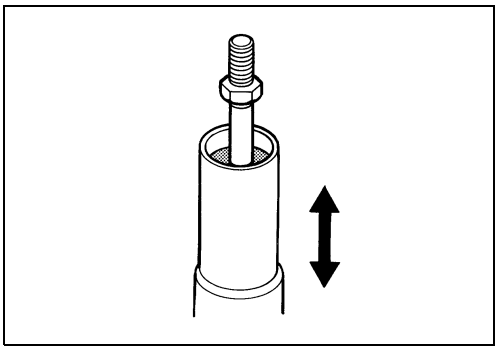
**TOOL 09940-52841: Front fork inner rod holder**

*NOTE:*
*Refill front fork oil up to the top of the outer tube so that bubbles are visible while bleeding air.*




• Refill specified front fork oil up to the top level of the outer tube again. Move the outer tube up and down several strokes until no more bubbles come out from the oil.
• Keep the front fork vertically and wait 5 – 6 minutes.

*NOTE:*
** Always keep oil level over the cartridge top end, or air may enter the cartridge during this procedure.*
** Take extreme care so as to pump out air completely.*

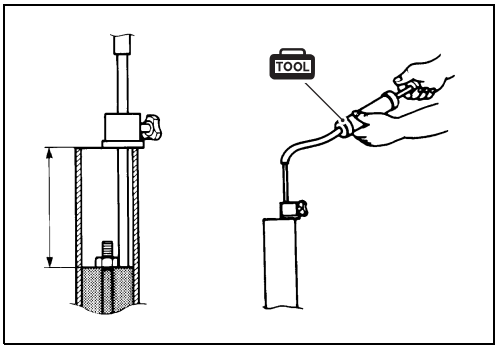


• Hold the front fork vertically and adjust fork oil level with the special tool.

*NOTE:*
*When adjusting the fork oil level, compress the outer tube fully without the fork spring.*

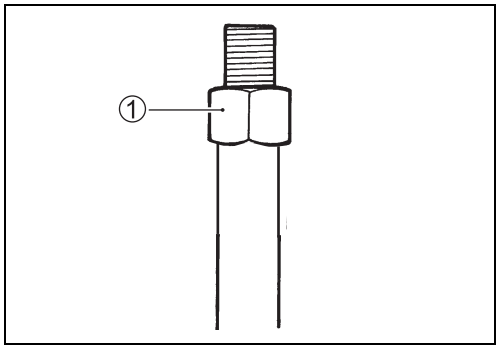
**DATA Fork oil level: 115 mm (4.2 in)**

**TOOL 09943-74111: Front fork oil level gauge**



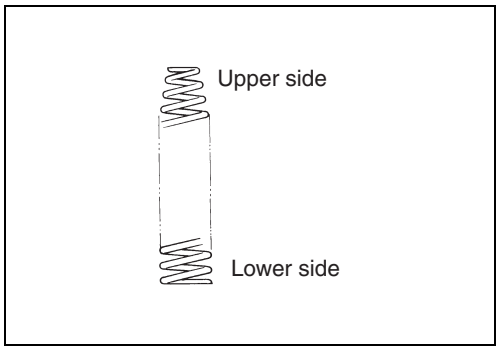
**FRONT FORK INNER ROD LOCK NUT**

- Tighten the lock nut ① to the bottom of inner rod threads.

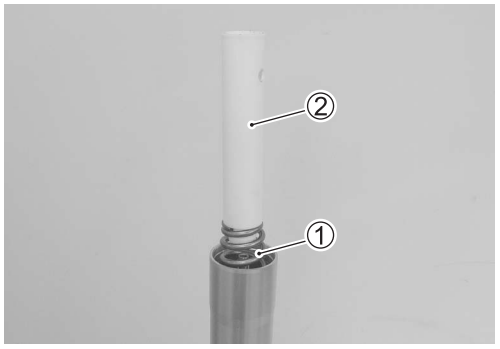



**FORK SPRING**

- Install the fork spring as shown in the illustration.



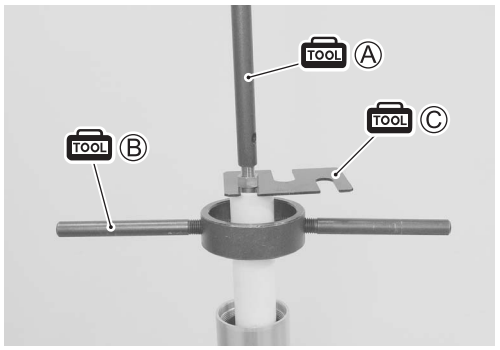

- Install the spring ① and spacer ②.




**FRONT FORK CAP BOLT**

- Pull up the inner rod with the special tool Ⓐ.
- Compress the spring with the special tool Ⓑ and then insert the special tool Ⓒ between the lock nut and the spacer.

**TOOL 09940-52841: Front fork inner rod holder Ⓐ**
**09940-94930: Front fork spacer holder Ⓑ**
**09940-94922: Front fork spring stopper plate Ⓒ (11 mm)**



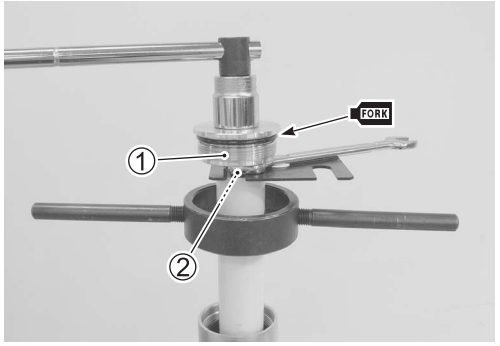

- Slowly turn the cap bolt ① until the inner rod is lightly seated.
- Hold the cap bolt ① and tighten the lock nut ② to the specified torque.

**Inner rod lock nut: 15 N·m (1.5 kgf-m, 11.0 lbf-ft)**

- Remove the special tools.
- Fit the O-ring to the front fork cap bolt and apply fork oil.

**CAUTION**

**Use a new O-ring to prevent oil leakage.**



## INSTALLATION

Install the front fork in the reverse order of removal. Pay attention to the following points:

- Install the front fork to the steering stem and steering stem upper bracket.
- Install the top of outer tube 5 mm (0.2 in) Ⓐ higher than the upper surface of the steering stem upper bracket and tighten the front fork lower clamp bolts ① to the specified torque.

**Front fork lower clamp bolt: 23 N·m (2.3 kgf-m, 16.5 lbf-ft)**

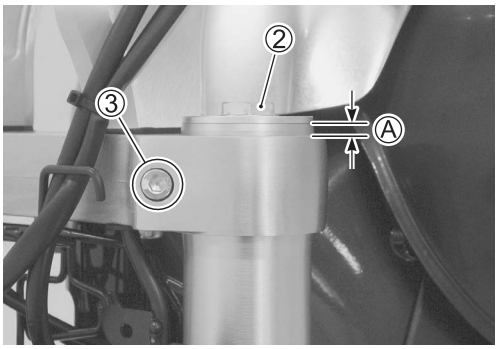
- Tighten the front fork cap bolt ② to the specified torque and recheck the front fork outer tube upper surface height.

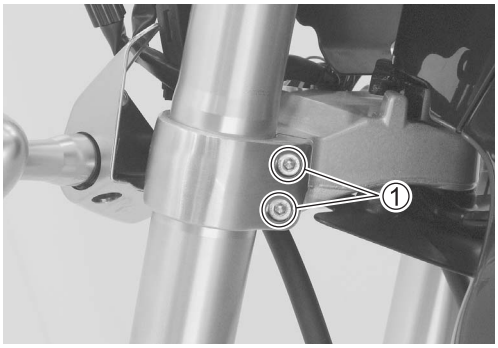
**Front fork cap bolt: 23 N·m (2.3 kgf-m, 16.5 lbf-ft)**

- Tighten the front fork upper clamp bolt ③.

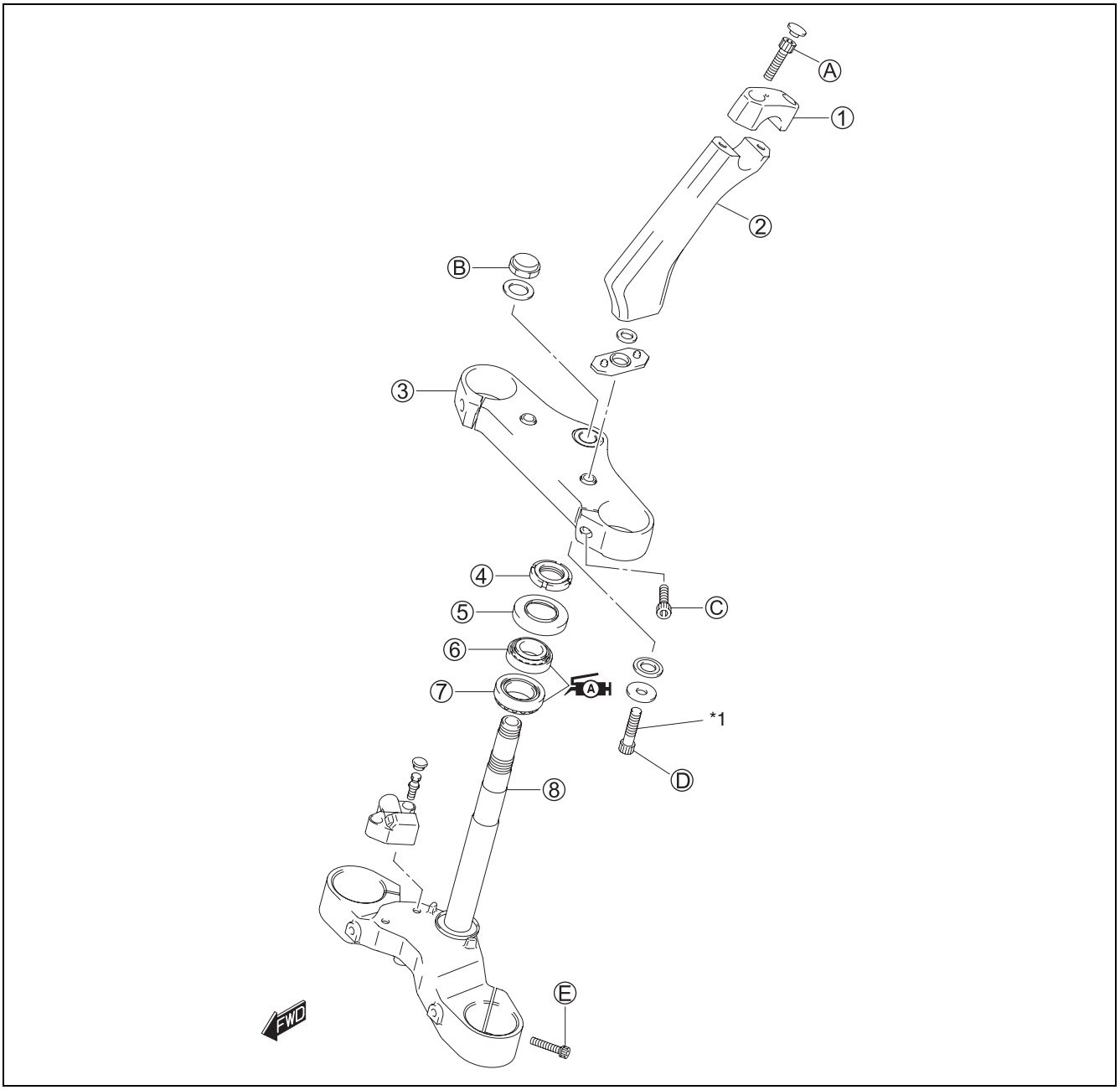
**Front fork upper clamp bolt: 23 N·m (2.3 kgf-m, 16.5 lbf-ft)**

- Install the front fender.
- Remount the front wheel. (☞VZR1800K6 9-13)
- Install the headlight housing assembly.



# STEERING
## CONSTRUCTION



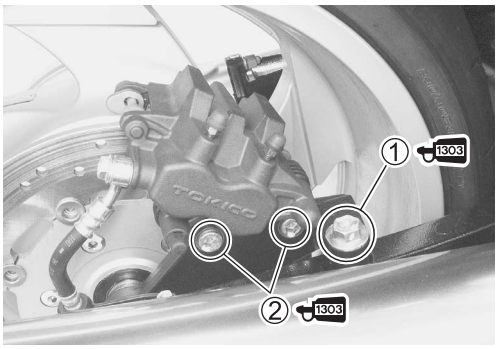

| | | | | | |
|---|---|---|---|---|---|
| ① | Handlebar clamp | ⑥ | Steering stem upper bearing | Ⓒ | Front fork upper clamp bolt |
| ② | Handlebar clamp holder | ⑦ | Steering stem lower bearing | Ⓓ | Handlebar holder bolt |
| ③ | Steering stem upper bracket | ⑧ | Steering stem | Ⓔ | Front fork lower clamp bolt |
| ④ | Steering stem nut | Ⓐ | Handlebar clamp bolt | * 1 | Use new precoated bolts. |
| ⑤ | Dust seal | Ⓑ | Steering stem head nut | | |

| ITEM | N·m | kgf-m | lbf-ft |
|---|---|---|---|
| Ⓐ | 23 | 2.3 | 16.5 |
| Ⓑ | 90 | 9.0 | 65.0 |
| Ⓒ | 23 | 2.3 | 16.5 |

| ITEM | N·m | kgf-m | lbf-ft |
|---|---|---|---|
| Ⓓ | 85 | 8.5 | 61.5 |
| Ⓔ | 23 | 2.3 | 16.5 |

# REAR BRAKE CALIPER AND BRACKET

## INSTALLATION




- Apply THREAD LOCK SUPER to the brake caliper bracket mounting bolt ① and tighten its to the specified torque.
- Apply THREAD LOCK SUPER to the rear brake caliper mounting bolts ② and tighten them to the specified torque.

**1303 99000-32030: THREAD LOCK SUPER "1303" or equivalent**

**Brake caliper bracket mouning bolt: 94 N·m (9.4 kgf-m, 68.0 lbf-ft)**

**Rear brake caliper mounting bolt: 54 N·m (5.4 kgf-m, 39.0 -)**

# CHARGING SYSTEM

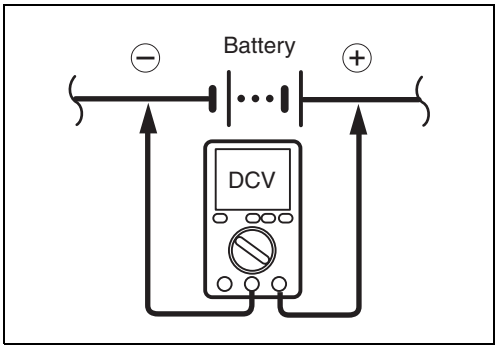
## INSPECTION

### REGULATED VOLTAGE

**DATA Regulated voltage (Charging output): 14.0 – 15.0 V at 5 000 r/min**

**TOOL 09900-25008: Multi circuit tester set**

**Tester knob indication: Voltage (⎓)**



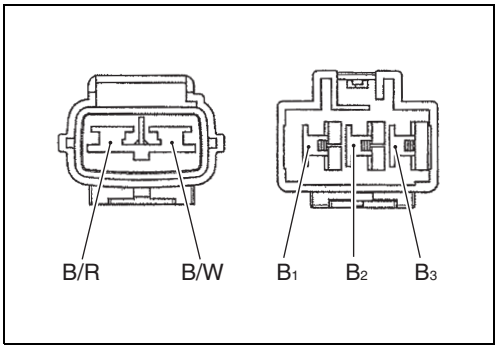

### REGULATOR/RECTIFIER

DATA

Unit: V

| ⊖ Probe of tester to: / ⊕ Probe of tester to: | B/R | B/W | B1 | B2 | B3 |
|---|---|---|---|---|---|
| B/R | | 0.6 – 0.9 | 0.3 – 0.6 | 0.3 – 0.6 | 0.3 – 0.6 |
| B/W | ∗ | | ∗ | ∗ | ∗ |
| B1 | ∗ | 0.3 – 0.6 | | ∗ | ∗ |
| B2 | ∗ | 0.3 – 0.6 | ∗ | | ∗ |
| B3 | ∗ | 0.3 – 0.6 | ∗ | ∗ | |

∗1.4 V and more (tester's battery voltage)




**TOOL 09900-25008: Multi circuit tester set**

**Tester knob indication: Diode test (⊣◀)**

# SPEEDOMETER AND TACHOMETER

## DESCRIPTION

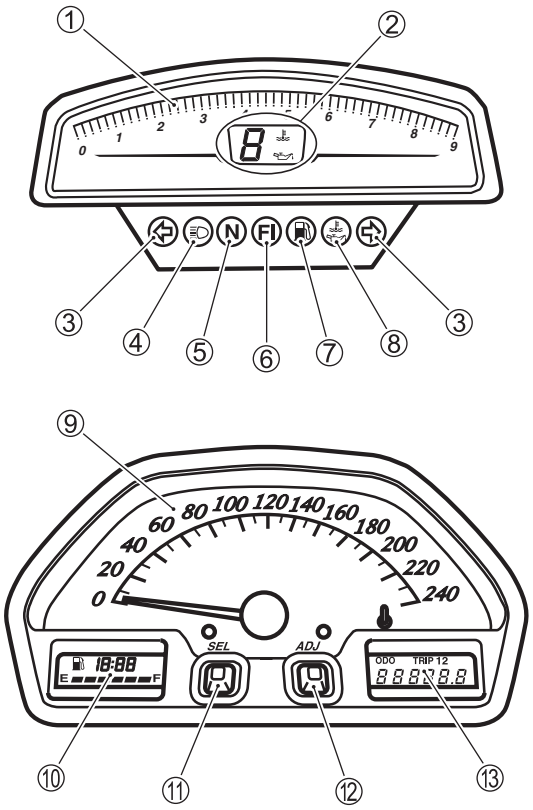
This speedometer and tachometer mainly consists of the stepping motor (except for tachometer), LCD (Liquid Crystal Display) and LED (Light Emitting Diode).
The speedometer pointer is driven by the stepping motor.
The LCDs indicate Tachometer, Gear position/Engine coolant temperature/Oil pressure temperature, Odo/Trip1/Trip2/FI (DTC) and Clock/Fuel level respectively.

**LED (Light Emitting Diode)**

LED is used for the illumination light and each indicator light.
LED is maintenance free. LED is less electric-power consuming and stronger to vibration resistance compared to the bulb.

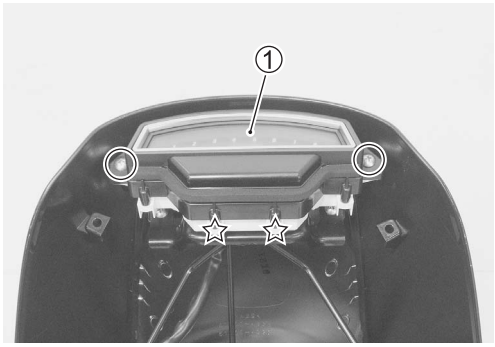
**Tachometer indicator lamp**

The tachometer light up for 1.0 second and then it operates 9 000 → 0 r/min one time.




| | | | |
|---|---|---|---|
| ① | LCD (Tachometer) | ⑧ | LED (Oil pressure/Engine coolant temperature indicator light) |
| ② | LCD (Gear position indicator/Oil pressure indicator/Engine coolant temperature indicator) | ⑨ | Speedometer |
| ③ | LED (Turn signal indicator light) | ⑩ | LCD (Clock/Fuel level) |
| ④ | LED (High-beam indicator light) | ⑪ | Select switch (Odo/Trip1/Trip2) |
| ⑤ | LED (Neutral indicator light) | ⑫ | Adjust switch (Trip/Clock) |
| ⑥ | LED (FI indicator light) | ⑬ | LCD (Odo/Trip1/Trip2) |
| ⑦ | LED (Fuel level indicator light) | | |

## TACHOMETER REMOVAL AND DISASSEMBLY

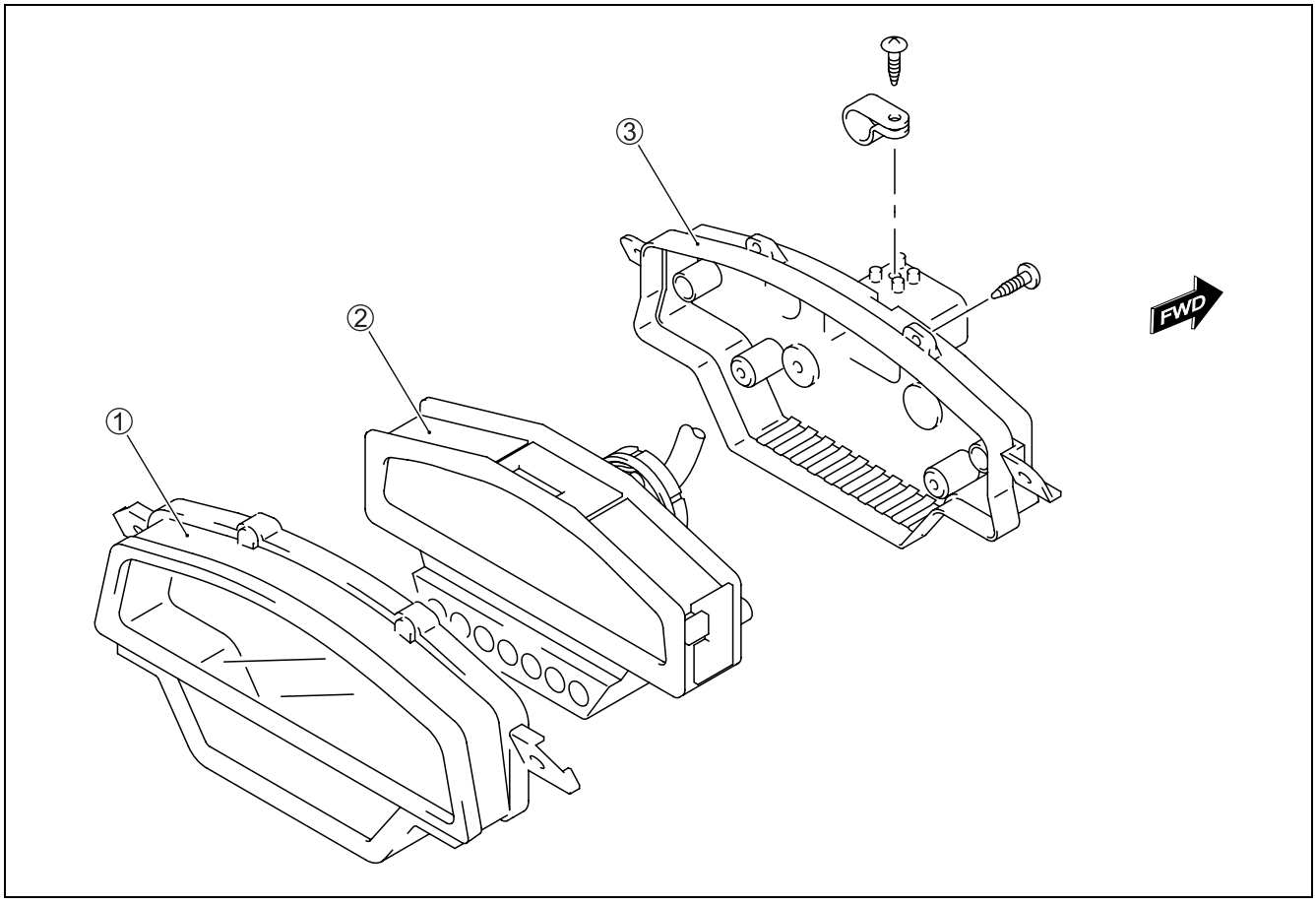



- Remove the headlight housing assembly. (☞Page 30)
- Remove the headlight upper cover. (☞Page 30)
- Remove the tachometer ①.
- Disassemble the tachometer as follows.

☆ : Hooked part

**CAUTION**

**Do not attempt to disassemble the tachometer unit ②.**

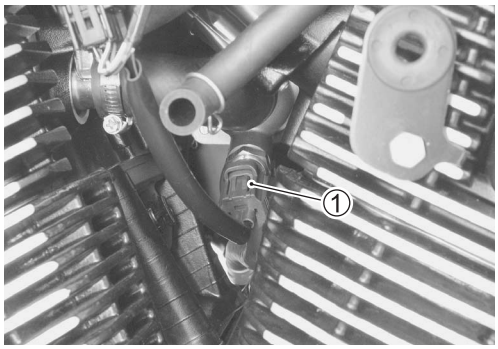



| | | | |
|---|---|---|---|
| ① | Upper case | ③ | Lower case |
| ② | Tachometer | | |

## ENGINE COOLANT TEMPERATURE METER AND INDICATOR INSPECTION

**ECT sensor inspection (☞VZR1800K6 8-9)**

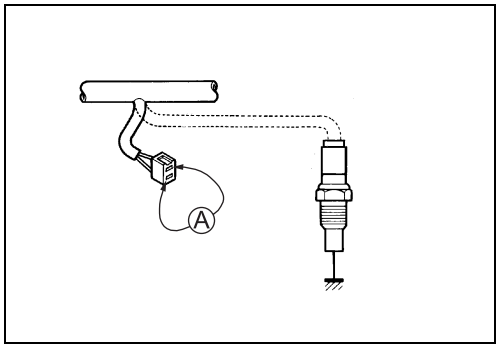
- Remove the right frame side cover. (☞VZR1800K6 9-5)
- Remove the right air cleaner box. (☞VZR1800K6 6-13)
- Disconnect the ECT sensor coupler ①.




**CAUTION**

**When connecting and disconnecting the engine coolant temperature sensor lead wire coupler, make sure to turn OFF the ignition switch, or electronic parts may get damaged.**

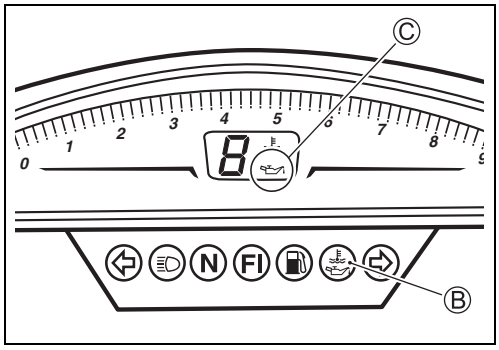
- Connect the speedometer coupler.
- Connect the variable resistor Ⓐ between the terminals.
- Disconnect the oil pressure switch lead wire from the oil pressure switch.




*NOTE:*
*Leave the oil pressure switch lead wire open.*

- Turn the ignition switch ON.
- Check the LCD and LED operations when the resistance is adjusted to the specified values.

| Resistance Ⓐ | LED Ⓑ | LCD Ⓒ | Water temperature |
|---|---|---|---|
| 0.1 kΩ and over | OFF | —— | 120 °C below |
| 0.1 kΩ and below | ON | ON | 120 °C and over |

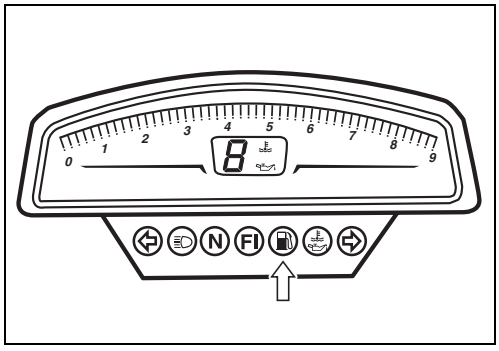



If either one or all indications are abnormal, replace the combination meter with a new one.

*NOTE:*
*If the engine stop switch is turned OFF or side-stand/ignition inter-lock system is not working while the ignition switch is ON, the LCD displays "CHEC". But it is not a malfunction.*
*This condition implies that combination meter receives no signal from the ECM.*
*In that case, they are restored to normal indication by turning the engine stop switch to RUN position.*

## FUEL LEVEL INDICATOR LIGHT INSPECTION

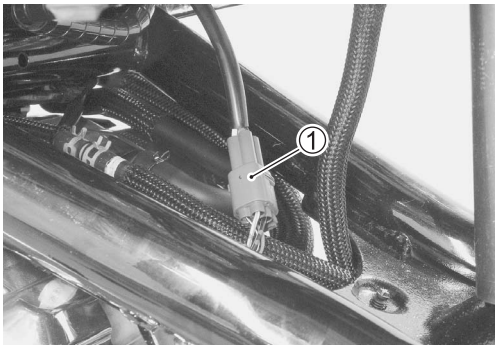
If the fuel level indicator light does not function properly, check the fuel level indicator switch and its lead wire/coupler.
If the fuel level indicator switch and its lead wire/coupler are functioning properly, replace the tachometer with a new one.



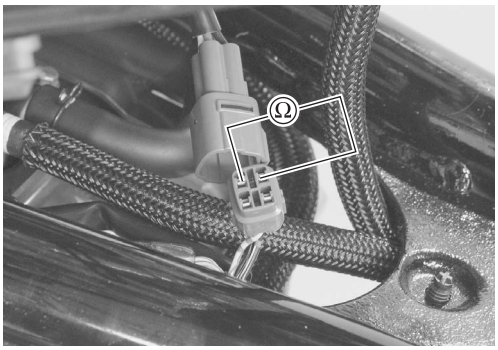
## FUEL LEVEL METER INSPECTION

- Lift and support the fuel tank. (☞VZR1800K6 6-3)
- Disconnect the fuel pump lead wire coupler ①.
- Connect variable resistor between the R/B and B/W lead wires at the wire harness.
- Turn the ignition switch "ON" position and wait for approx. 40 seconds.

Check the display of fuel meter as shown below, If any abnormality is found, replace the combination meter with a new one.




*NOTE:*
*Side-stand is "ON" (side-stand up) position when inspecting it.*

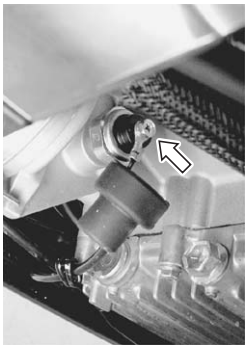


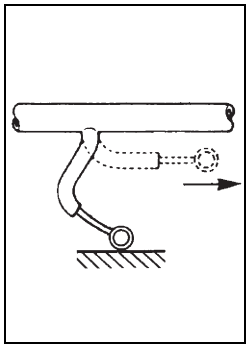

| Resistance | More than 202 Ω | More than 202 Ω | 130 – 175 Ω | 76 – 112 Ω | 21 – 64 Ω | Less than 15 Ω |
|---|---|---|---|---|---|---|
| Thermistor | ON | OFF | OFF | OFF | OFF | OFF |
| Fuel level meter | Flicker<br>E Flicker F | Flicker<br>E F | – ON<br>E F | – ON<br>E F | – ON<br>E F | – ON<br>E F |
| Fuel indicator light | ON | Flicker | OFF | OFF | OFF | OFF |

## OIL PRESSURE INDICATOR

*NOTE:*
*Before inspecting the oil pressure switch, check if the engine oil level is correct. (☞VZR1800K6 2-17)*

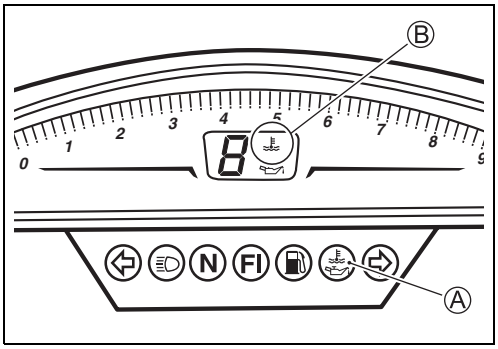
- Disconnect the oil pressure switch lead wire from the oil pressure switch.
- Turn the ignition switch ON.
- Check if the oil pressure indicator Ⓐ and LCD Ⓑ will light, when grounding the lead wire.





If any indications are abnormal, replace the combination meter with a new one after checking connection of couplers.

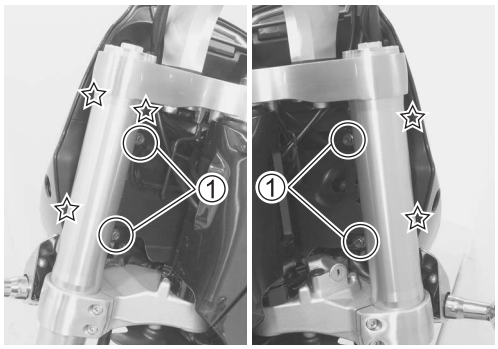
*NOTE:*
*Install the rubber cover correctly after inspecting it.*



# HEADLIGHT HOUSING/TACHOMETER AND HEADLIGHT COVER BRACE

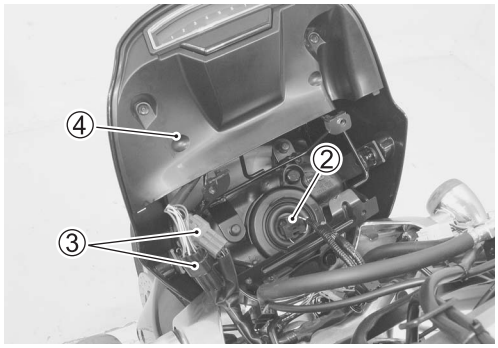
## REMOVAL

- Remove the bolts ①.

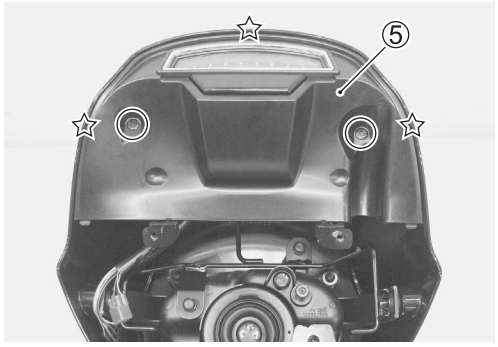



☆ : Hooked part

- Disconnect the headlight coupler ② and tachometer couplers ③.
- Remove the headlight housing assembly ④.

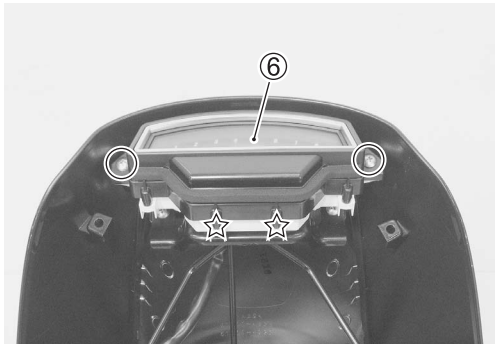



- Remove the headlight upper cover ⑤.

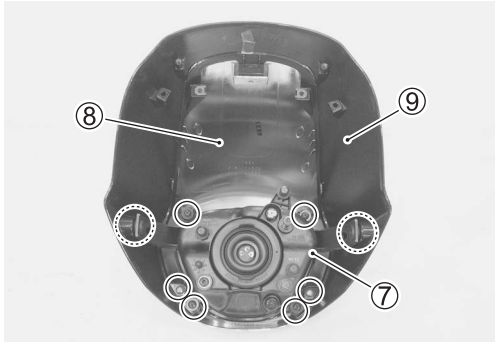



☆ : Hooked part

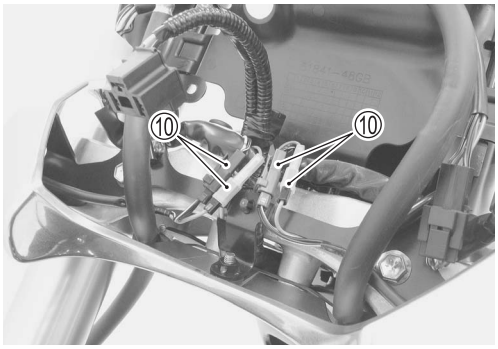
- Remove the tachometer ⑥.



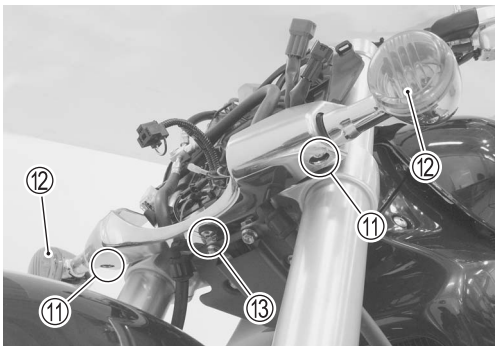

- Remove the headlight ⑦ and headlight cover ⑧ from the headlight lower cover ⑨.



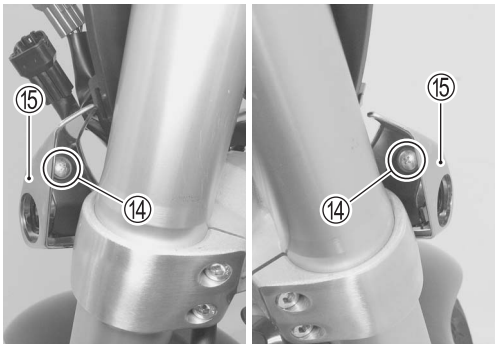
- Disconnect the front turn signal light couplers ⑩.



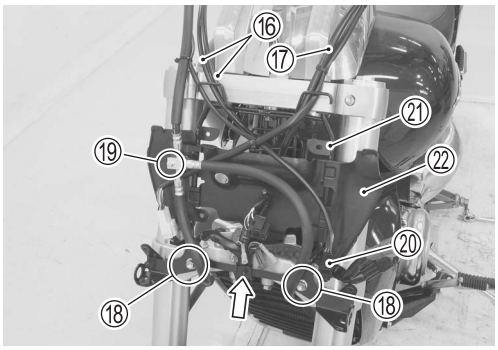

- Remove the front turn signal lights ⑫ by removing the mounting screws ⑪.
- Remove the front turn signal light cover bolt ⑬.



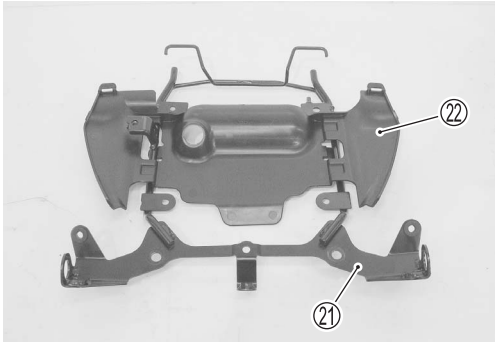

- Remove the front turn signal cover ⑮ by removing the cover bolts ⑭.




- Disconnect the throttle cables ⑯ and clutch cable ⑰.
- Remove the headlight cover brace bolts ⑱ and brake hose joint mounting bolt ⑲.
- Disconnect the fixed clamp and right handlebar switch coupler ⑳.
- Remove the headlight cover brace ㉑ along with headlight housing bracket cover ㉒.




- Remove the headlight housing bracket cover ㉒ from the headlight cover brace ㉑.

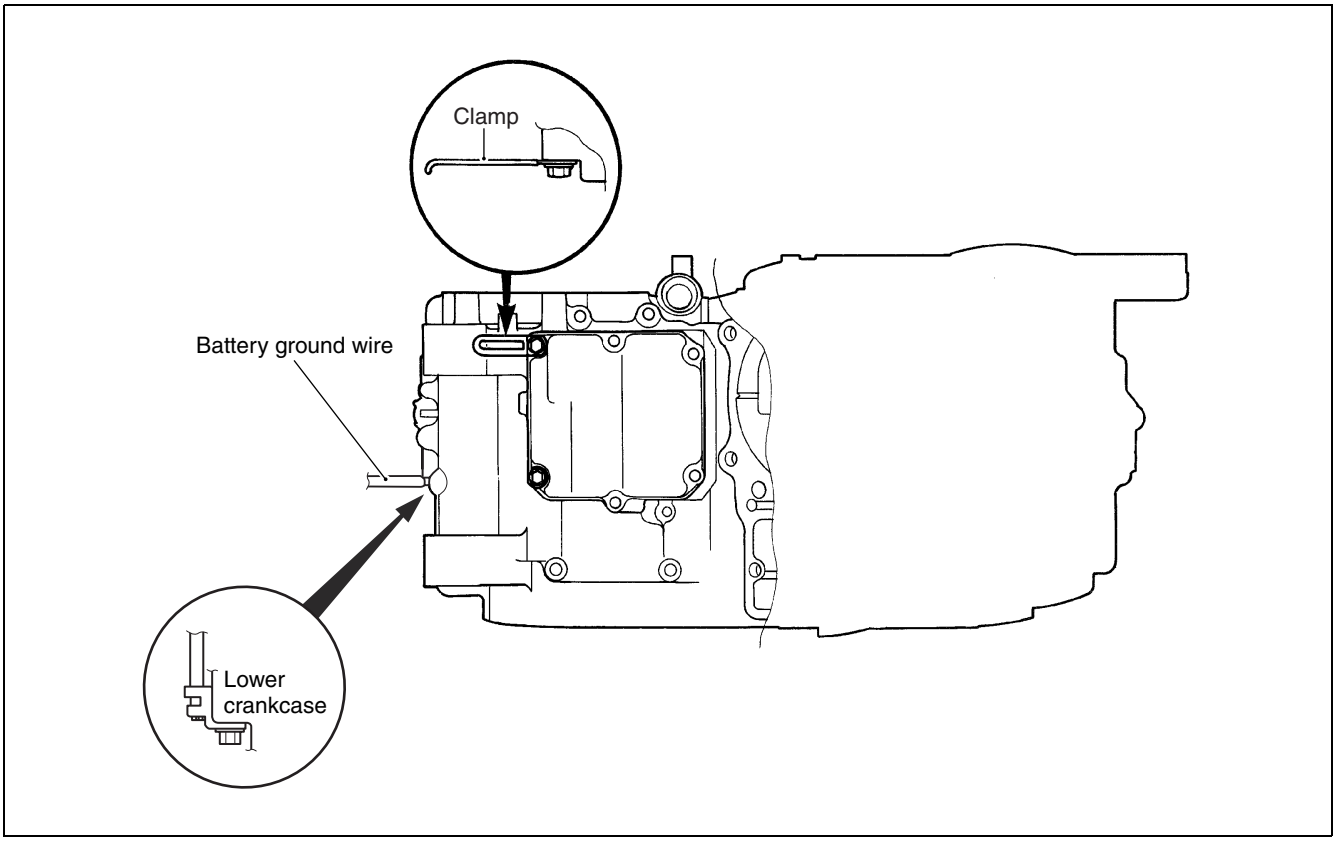



## INSTALLATION

Installation is in the reverse order of removal.
Pay attention to the following point:

- Route the cables, hoses and wire harnesses properly. (☞Page 38, 39, 40, 47)

# BATTERY GROUND WIRE
## INSTALLATION
The battery ground wire fixing point was changed.



# TIGHTENING TORQUE

## ENGINE

| ITEM | N·m | kgf-m | lbf-ft |
|---|---|---|---|
| Muffler support bracket bolt | 26 | 2.6 | 19.0 |
| Muffler support bracket nut | 28 | 2.8 | 20.0 |

## DRIVELINE/AXLE

| ITEM | N·m | kgf-m | lbf-ft |
|---|---|---|---|
| Secondary driven gear bearing housing bolt | 55 | 5.5 | 40.0 |

## CHASSIS

| ITEM | N·m | kgf-m | lbf-ft |
|---|---|---|---|
| Front fork damper rod bolt | 23 | 2.3 | 16.5 |
| Rear brake caliper bracket mounting bolt | 94 | 9.4 | 68.0 |
| Brake caliper mounting bolt (Rear) | 54 | 5.4 | 39.0 |
| Front footrest bolt (LH &RH) | 60 | 6.0 | 43.5 |
| Front turn signal cover screw | 1.5 | 0.15 | 1.0 |
| Front turn signal cover bolt | 5.5 | 0.55 | 4.0 |
| Front turn signal light mounting screw | 5.5 | 0.55 | 4.0 |

# SERVICE DATA

*NOTE:*
*Any differences between the VZR1800/NK9 ('09-model) and VZR1800/ZL0 ('10-model) in service data are indicated with an asterisk mark (*) and highlighting (halftone screen).*

## CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

| ITEM | STANDARD | | LIMIT |
|---|---|---|---|
| Cam height | IN. | 40.88 – 40.93<br>(1.609 – 1.611) | 40.58<br>(1.598) |
| | EX. | * 40.48 – 40.53<br>(1.594 – 1.596) | * 40.18<br>(1.582) |
| Camshaft journal oil clearance | IN. & EX. | 0.032 – 0.066<br>(0.0013 – 0.0026) | 0.150<br>(0.0059) |
| Camshaft journal holder I.D. | IN. & EX. | 24.012 – 24.025<br>(0.9454 – 0.9459) | — |
| Camshaft journal O.D. | IN. & EX. | 23.959 – 23.980<br>(0.9433 – 0.9441) | — |
| Camshaft runout | IN. & EX. | — | 0.10<br>(0.004) |
| Cam chain pin (at arrow "3") | 18th pin | | — |
| Cylinder head distortion | — | | 0.05<br>(0.002) |

## CYLINDER + PISTON + PISTON RING

Unit: mm (in)

| ITEM | STANDARD | | LIMIT |
|---|---|---|---|
| Compression pressure (Automatic de-comp. actuated) | * 900 – 1 800 kPa (9.0 – 18.0 kgf/cm², 128 – 256 psi) | | 800 kPa (8.0 kgf/cm², 114 psi) |
| Compression pressure difference | — | | 200 kPa (2.0 kgf/cm², 28 psi) |
| Piston to cylinder clearance | 0.025 – 0.040 (0.0010 – 0.0016) | | 0.120 (0.0047) |
| Cylinder bore | 112.000 – 112.015 (4.4094 – 4.4100) | | Nicks or Scratches |
| Piston diam. | 111.967 – 111.983 (4.4081 – 4.4088) Measure at 10 mm (0.4 in) from the skirt end. | | 111.880 (4.4047) |
| Cylinder distortion | — | | 0.05 (0.002) |
| Piston ring free end gap | 1st | Approx. 15.7 (0.62) | 12.6 (0.50) |
| | 2nd | Approx. 14.5 (0.57) | 11.6 (0.46) |
| Piston ring end gap | 1st | 0.10 – 0.25 (0.004 – 0.010) | 0.50 (0.020) |
| | 2nd | 0.10 – 0.25 (0.004 – 0.010) | 0.50 (0.020) |
| Piston ring to groove clearance | 1st | — | 0.180 (0.0071) |
| | 2nd | — | 0.150 (0.0059) |
| Piston ring groove width | 1st | 0.93 – 0.95 (0.0366 – 0.0374) | — |
| | | 1.55 – 1.57 (0.0610 – 0.0618) | — |
| | 2nd | 1.21 – 1.23 (0.0476 – 0.0484) | — |
| | Oil | 2.51 – 2.53 (0.0988 – 0.0996) | — |
| Piston ring thickness | 1st | 0.86 – 0.91 (0.034 – 0.036) | — |
| | | 1.38 – 1.40 (0.054 – 0.055) | — |
| | 2nd | 1.17 – 1.19 (0.046 – 0.047) | — |
| Piston pin bore I.D. | 23.002 – 23.008 (0.9056 – 0.9058) | | 23.030 (0.9067) |
| Piston pin O.D. | 22.995 – 23.000 (0.9053 – 0.9055) | | 22.980 (0.9047) |

## CONROD + CRANKSHAFT

Unit: mm (in)

| ITEM | STANDARD | LIMIT |
|---|---|---|
| Conrod small end I.D. | 23.010 – 23.018<br>(0.9059 – 0.9062) | 23.040<br>(0.9071) |
| Conrod big end side clearance | 0.100 – 0.200<br>(0.0039 – 0.0078) | 0.30<br>(0.012) |
| Conrod big end width | 23.95 – 24.00<br>(0.943 – 0.945) | — |
| Crank pin width | 24.10 – 24.15<br>(0.9488 – 0.9508) | — |
| Conrod big end oil clearance | 0.032 – 0.056<br>(0.0013 – 0.0022) | 0.080<br>(0.0031) |
| Crank pin O.D. | 54.976 – 55.000<br>(2.1644 – 2.1654) | — |
| Crankshaft journal oil clearance | * 0.010 – 0.028<br>(0.0004 – 0.0011) | 0.080<br>(0.0031) |
| Crankshaft journal O.D. | 54.982 – 55.000<br>(2.1646 – 2.1654) | — |
| Crankshaft thrust bearing thickness | 2.250 – 2.550<br>(0.0886 – 0.1004) | — |
| Crankshaft thrust clearance | 0.100 – 0.200<br>(0.0039 – 0.0079) | — |
| Crankshaft runout | — | 0.05<br>(0.002) |

## CLUTCH

Unit: mm (in)

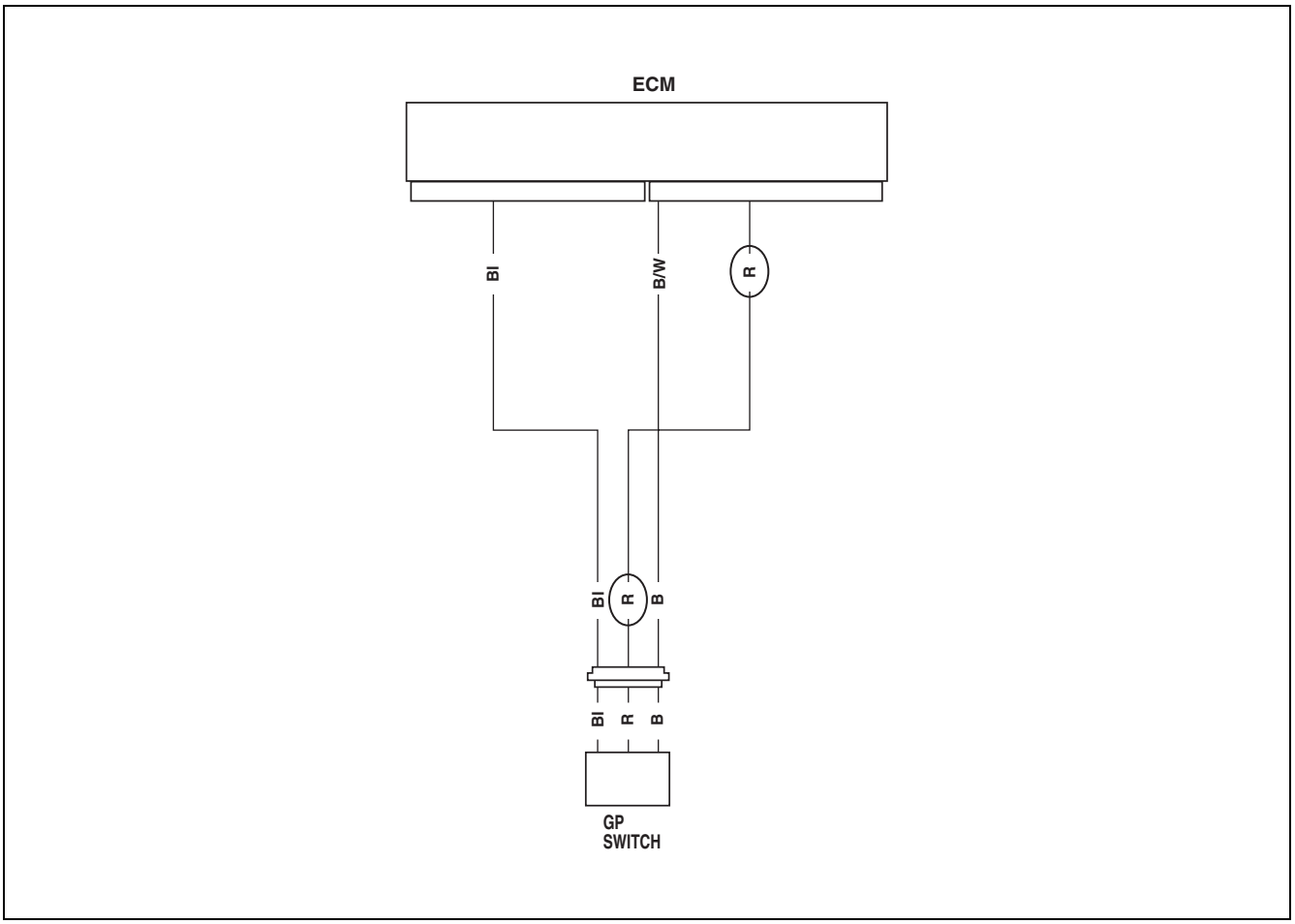
| ITEM | STANDARD | | LIMIT |
|---|---|---|---|
| Clutch cable play | 10 – 15<br>(0.4 – 0.6) | | — |
| Clutch release screw | 1 turn back | | — |
| Drive plate thickness | No. 1 | * 2.92 – 3.08<br>(0.115 – 0.121) | * 2.62<br>(0.103) |
| Driven plate thickness | No. 2 | 3.32 – 3.48<br>(0.131 – 0.137) | 2.62<br>(0.103) |
| Driven plate claw width | No. 1 | * 7.85 – 7.96<br>(0.309 – 0.313) | * 7.85 – 7.96<br>(0.309 – 0.313) |
| | No. 2 | 7.96 – 8.15<br>(0.313 – 0.321) | 7.16<br>(0.282) |
| Clutch plate distortion | Drive No. 2 – No. 4 & Driven No. 1 | — | 0.10<br>(0.004) |
| Clutch spring free length | * 55.11<br>(2.170) | | * 52.4<br>(2.06) |

## SUSPENSION

Unit: mm (in)

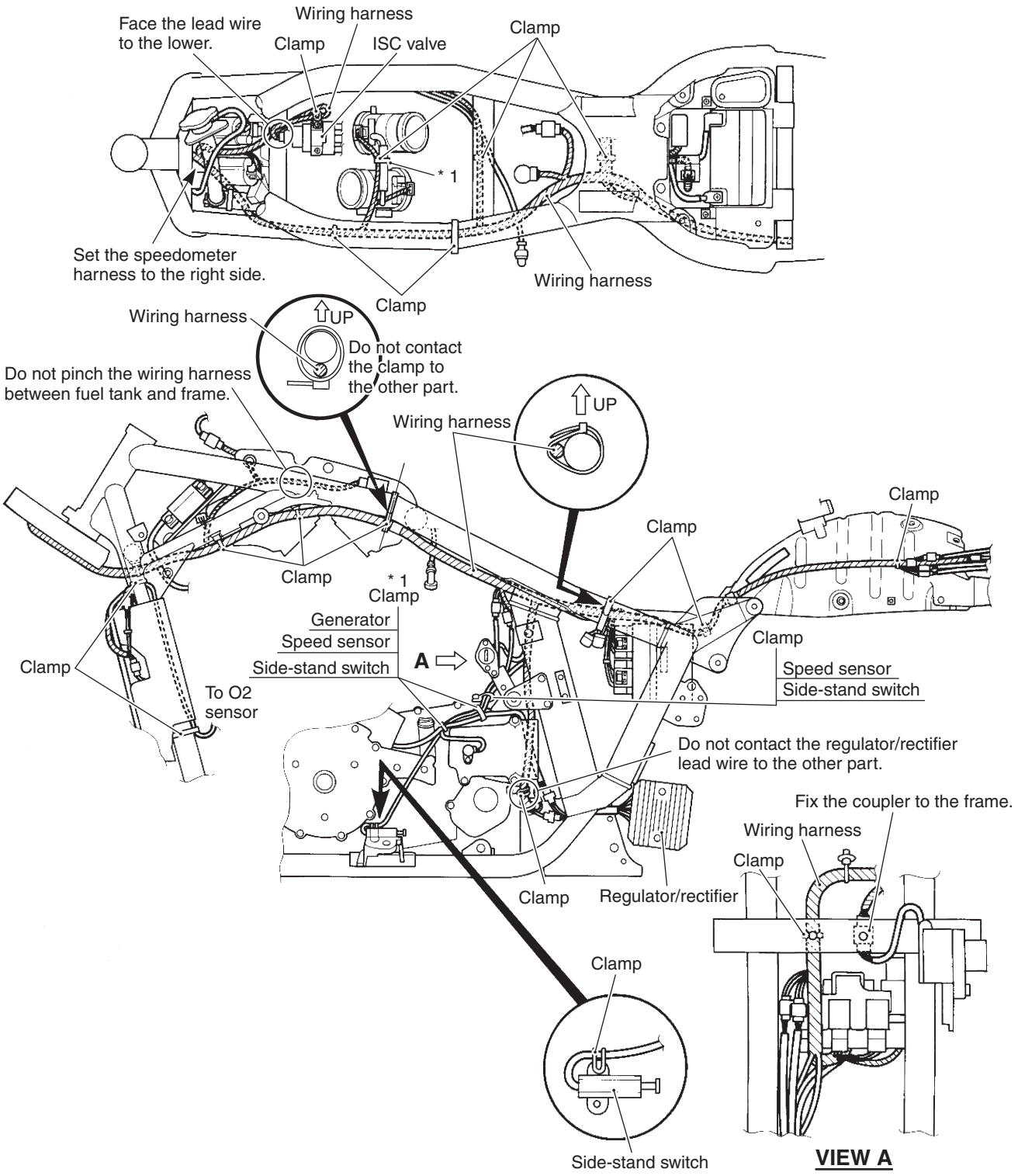
| ITEM | STANDARD | LIMIT |
|---|---|---|
| Front fork stroke | 130<br>(5.1) | — |
| Front fork spring free length | * 390<br>(15.4) | * 382<br>(15.0) |
| Front fork inner tube O.D. | 46<br>(1.8) | — |
| Front fork oil level<br>(without spring, inner tube fully compressed) | * 115<br>(4.5) | — |
| Front fork oil type | SUZUKI FORK OIL L01 or an equivalent fork oil | — |
| Front fork oil capacity (each leg) | * 718 ml<br>(24.3/25.3 US/lmp oz) | — |
| Rear shock absorber spring adjuster | 4/7 | — |
| Rear wheel travel | 118<br>(4.6) | — |
| Swingarm pivot shaft runout | — | 0.3<br>(0.01) |

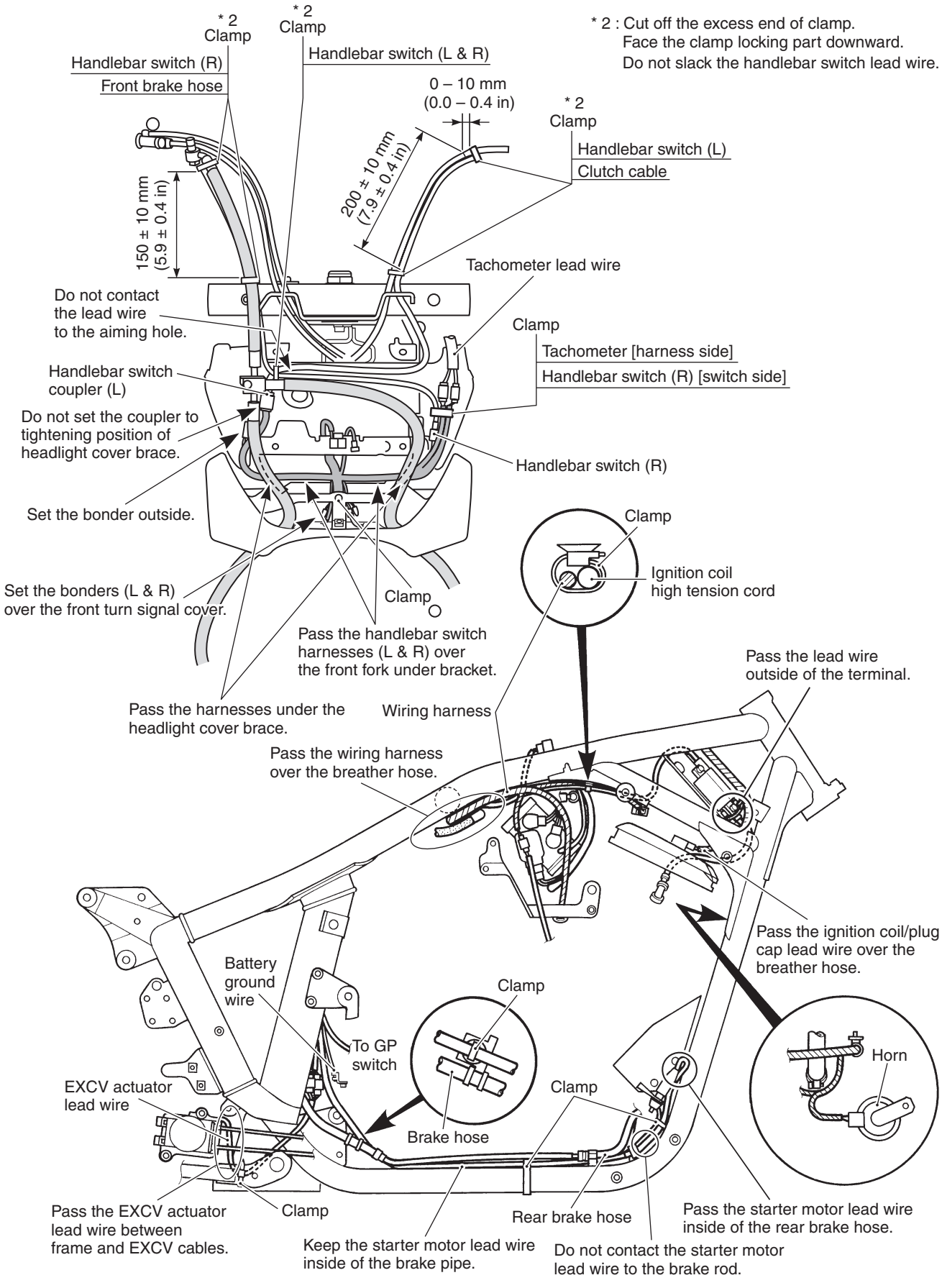
## WIRING DIAGRAM



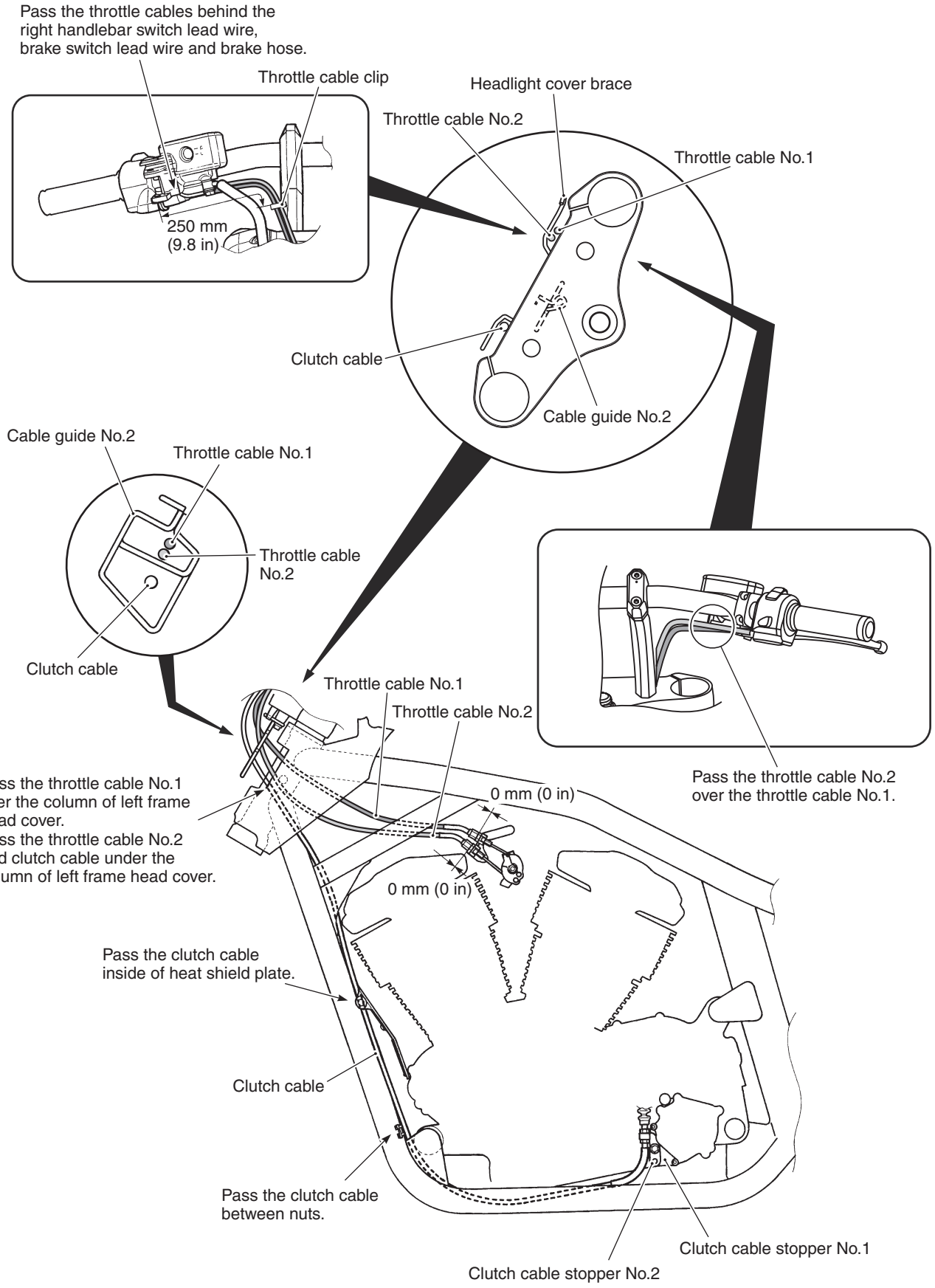
# WIRING HARNESS ROUTING

* 1 : Cut off the excess end of clamp.

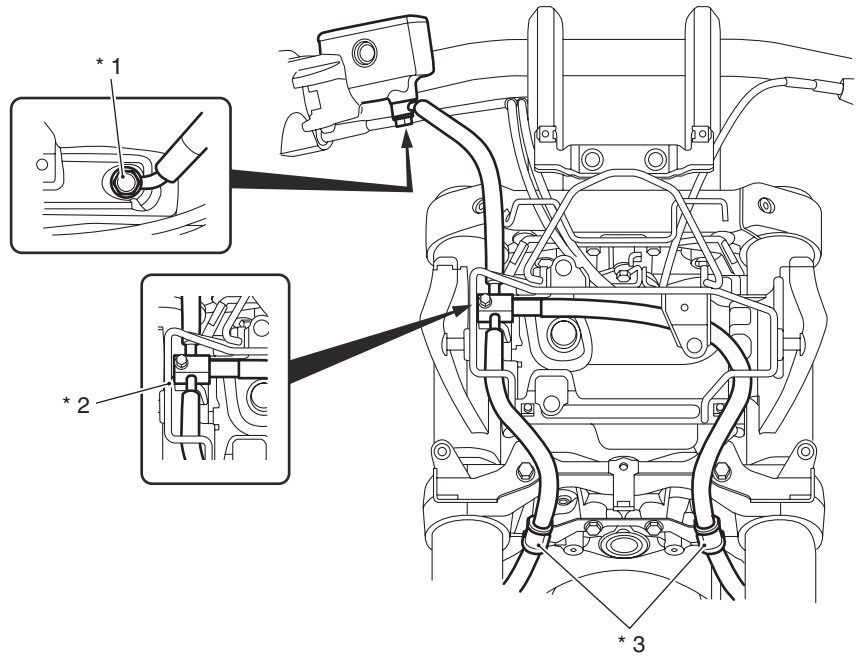


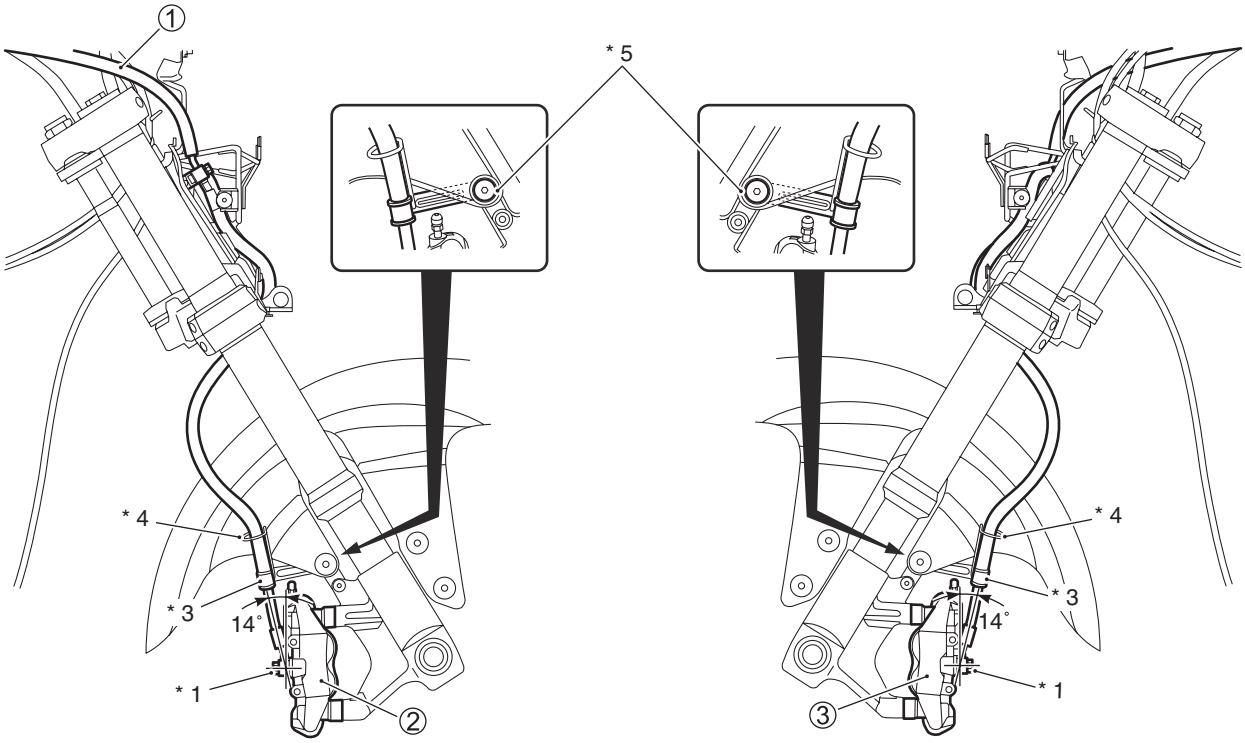

* 2 : Cut off the excess end of clamp.
Face the clamp locking part downward.
Do not slack the handlebar switch lead wire.
* 2 Clamp
* 2 Clamp
Handlebar switch (R)
Front brake hose
Handlebar switch (L & R)
0 – 10 mm (0.0 – 0.4 in)
* 2 Clamp
Handlebar switch (L)
Clutch cable
150 ± 10 mm (5.9 ± 0.4 in)
200 ± 10 mm (7.9 ± 0.4 in)
Tachometer lead wire
Do not contact the lead wire to the aiming hole.
Clamp
Tachometer [harness side]
Handlebar switch (R) [switch side]
Handlebar switch coupler (L)
Do not set the coupler to tightening position of headlight cover brace.
Handlebar switch (R)
Set the bonder outside.
Clamp
Ignition coil high tension cord
Set the bonders (L & R) over the front turn signal cover.
Clamp
Pass the handlebar switch harnesses (L & R) over the front fork under bracket.
Pass the lead wire outside of the terminal.
Pass the harnesses under the headlight cover brace.
Wiring harness
Pass the wiring harness over the breather hose.
Pass the ignition coil/plug cap lead wire over the breather hose.
Battery ground wire
Clamp
To GP switch
Horn
EXCV actuator lead wire
Clamp
Brake hose
Pass the EXCV actuator lead wire between frame and EXCV cables.
Clamp
Rear brake hose
Pass the starter motor lead wire inside of the rear brake hose.
Keep the starter motor lead wire inside of the brake pipe.
Do not contact the starter motor lead wire to the brake rod.

# CABLE ROUTING


Pass the throttle cables behind the right handlebar switch lead wire, brake switch lead wire and brake hose.
Throttle cable clip
250 mm (9.8 in)
Headlight cover brace
Throttle cable No.2
Throttle cable No.1
Clutch cable
Cable guide No.2
Cable guide No.2
Throttle cable No.1
Throttle cable No.2
Clutch cable
Throttle cable No.1
Throttle cable No.2
Pass the throttle cable No.2 over the throttle cable No.1.
Pass the throttle cable No.1 over the column of left frame head cover.
Pass the throttle cable No.2 and clutch cable under the column of left frame head cover.
0 mm (0 in)
0 mm (0 in)
Pass the clutch cable inside of heat shield plate.
Clutch cable
Pass the clutch cable between nuts.
Clutch cable stopper No.1
Clutch cable stopper No.2

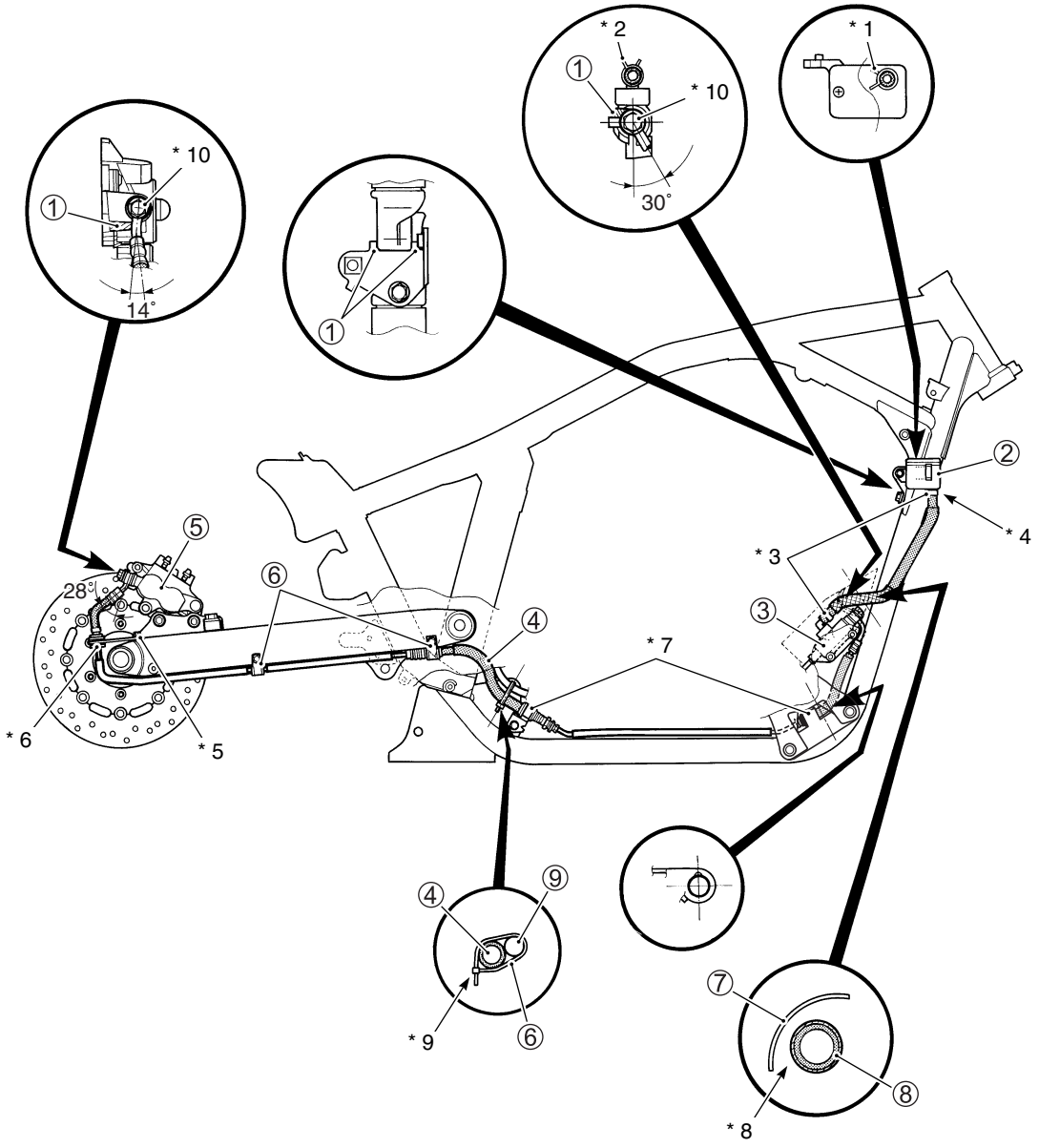
# FRONT BRAKE HOSE ROUTING




| | | | |
|---|---|---|---|
| ① | Front brake hose | * 2 | Tighten the bolt after positioning the brake hose joint to the stopper of headlight cover brace. |
| ② | Front brake caliper (R) | | |
| ③ | Front brake caliper (L) | * 3 | Fix the brake hose to the clamp. |
| * 1 | Tighten the brake hose union bolt to the specified torque after contacting the brake hose union to the stopper. | * 4 | Pass the brake hose into the guide. |
| | | * 5 | Tighten the bolt after positioning the stopper of brake hose clamp to the front fork. |

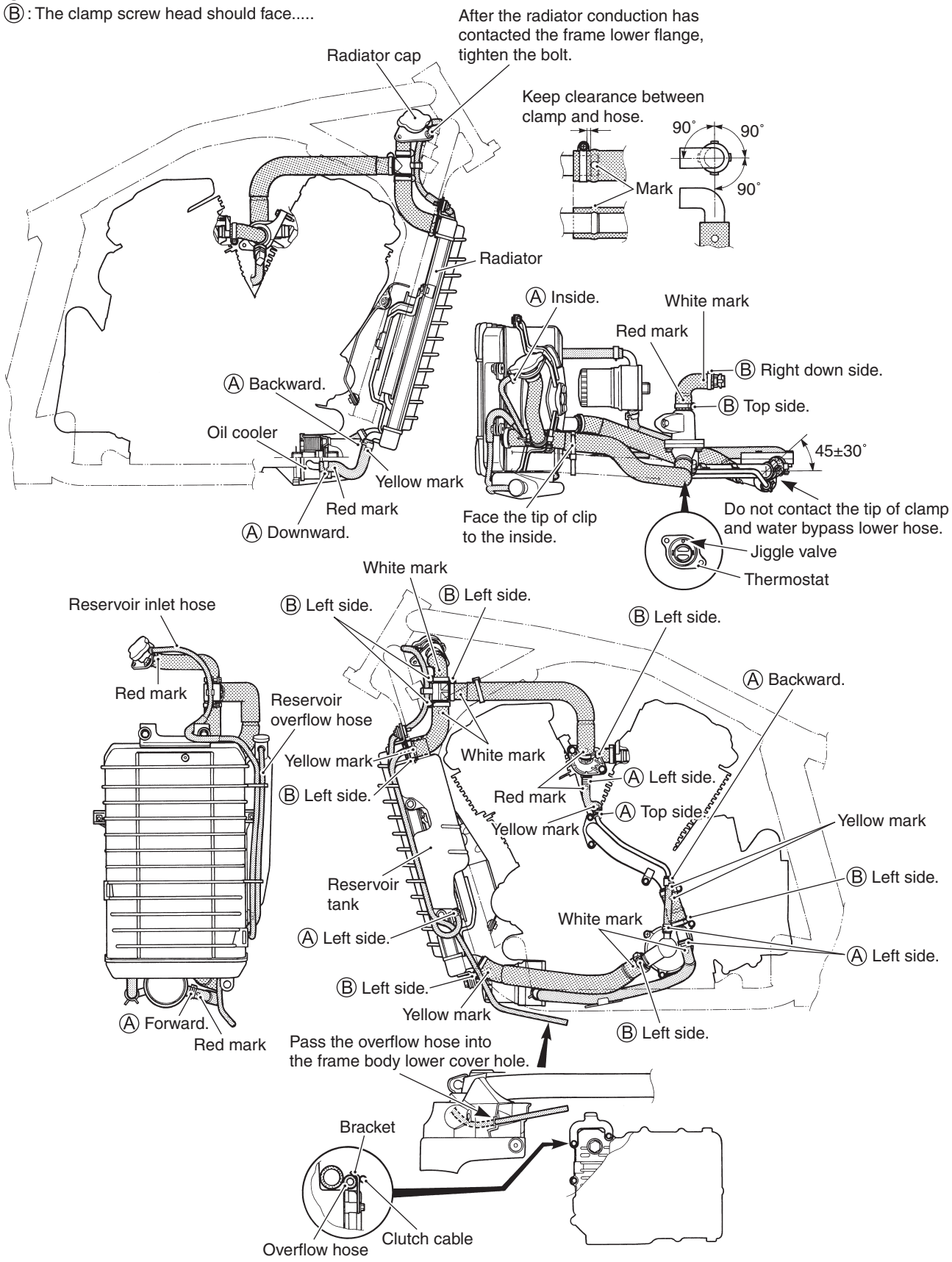
# REAR BRAKE HOSE ROUTING



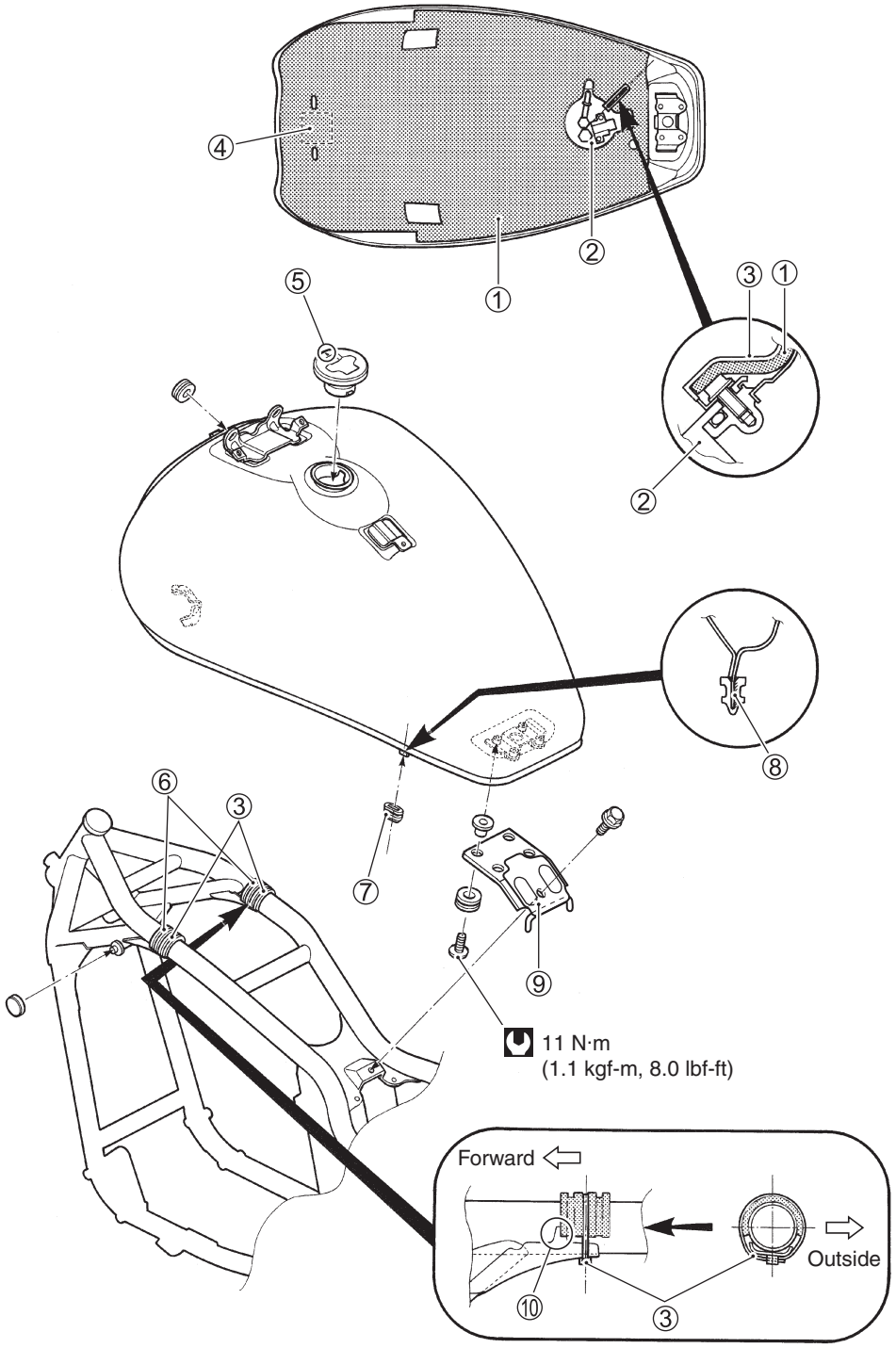

| | | | |
|---|---|---|---|
| ① | Stopper | * 2 | Clamp ends should face upward. |
| ② | Reservoir tank | * 3 | Insert the reservoir hose fully to the reservoir tank and brake master cylinder. |
| ③ | Brake master cylinder | * 4 | Face the white paint on reservoir hose to forward. |
| ④ | Brake hose | * 5 | Tighten the hose guide bolt after positioning the stopper of hose guide to the swingarm. |
| ⑤ | Brake caliper | * 6 | Fix the grommet of brake hose to the hose guide. |
| ⑥ | Clamp | * 7 | Fix the brake hose to the clamp. |
| ⑦ | Master cylinder cover | * 8 | Pass the reservoir hose inside of the master cylinder cover. |
| ⑧ | Reservoir hose | * 9 | Do not contact the hose and muffler. |
| ⑨ | Starter motor lead wire | * 10 | Tighten the brake hose union bolt to the specified torque after contacting the brake hose union to the stopper. |
| * 1 | Clamp ends should face backward. | | |

# COOLING SYSTEM HOSE ROUTING

Ⓐ : The ends of the clamp should face.....
Ⓑ : The clamp screw head should face.....

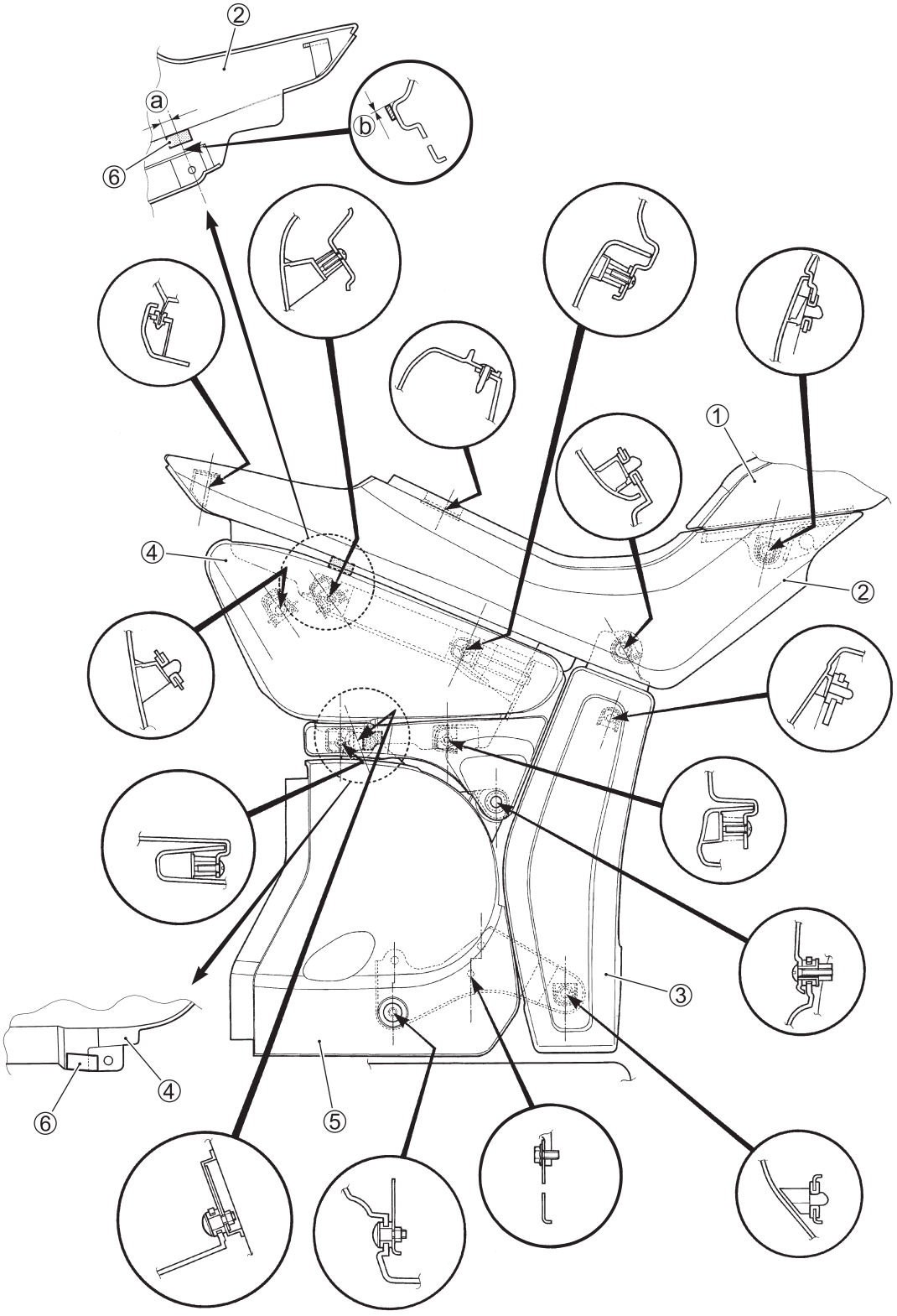


# FUEL TANK INSTALLATION



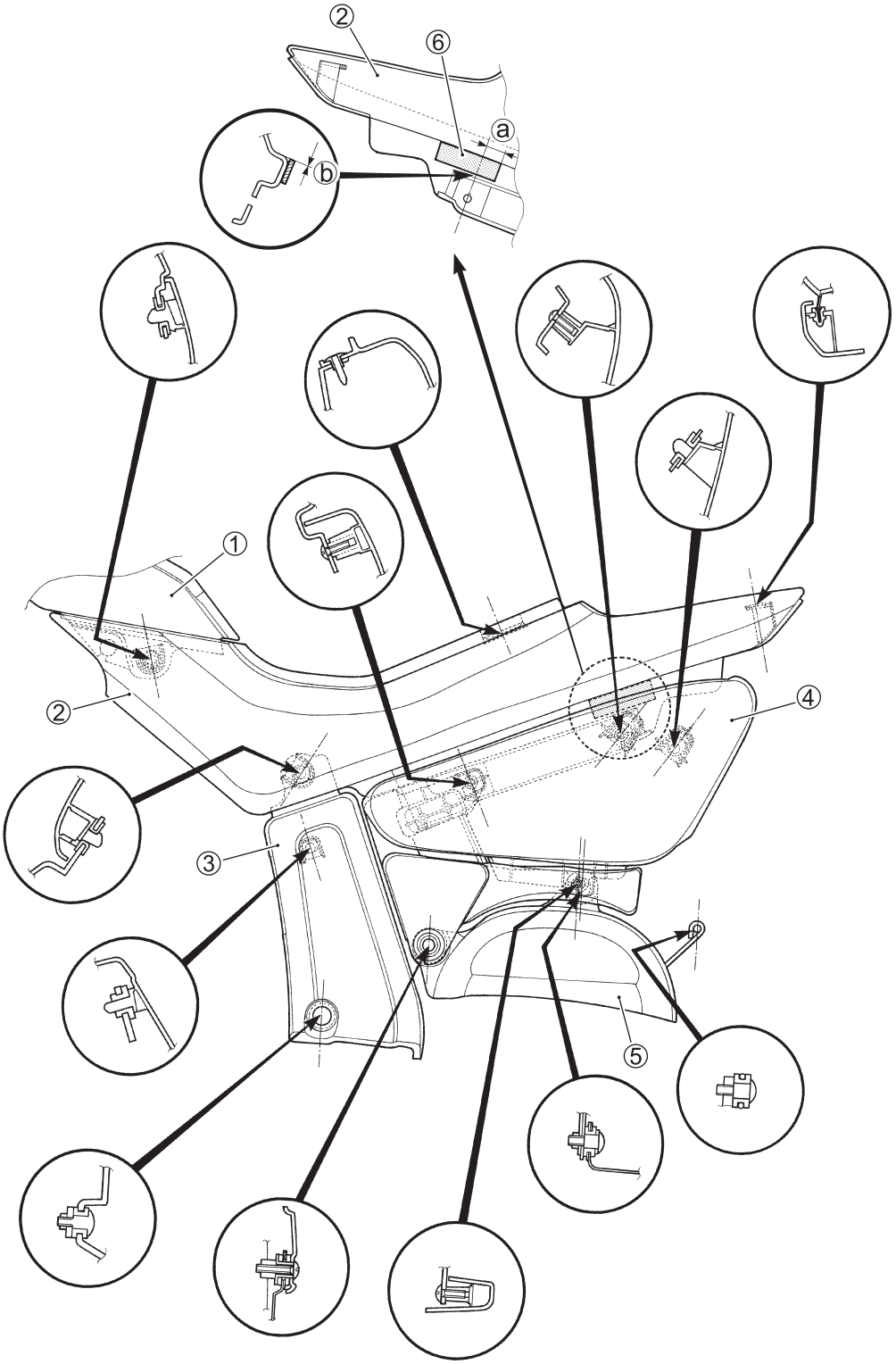

| | | | |
|---|---|---|---|
| ① | Heat shield | ⑥ | Fuel tank cushion |
| ② | Fuel pump | ⑦ | Rear fender cover cushion |
| ③ | Clamp | ⑧ | Apply instant adhesive to the shaded portion. |
| ④ | Adhere the heat shield on the tank with the double-faced tape. | ⑨ | Fuel tank rear bracket |
| ⑤ | Face the arrow mark to the forward, when installing the fuel tank cap. | ⑩ | Attach the front of fuel tank cushion to the reinforcement of frame. |

# LEFT FRAME COVERS INSTALLATION



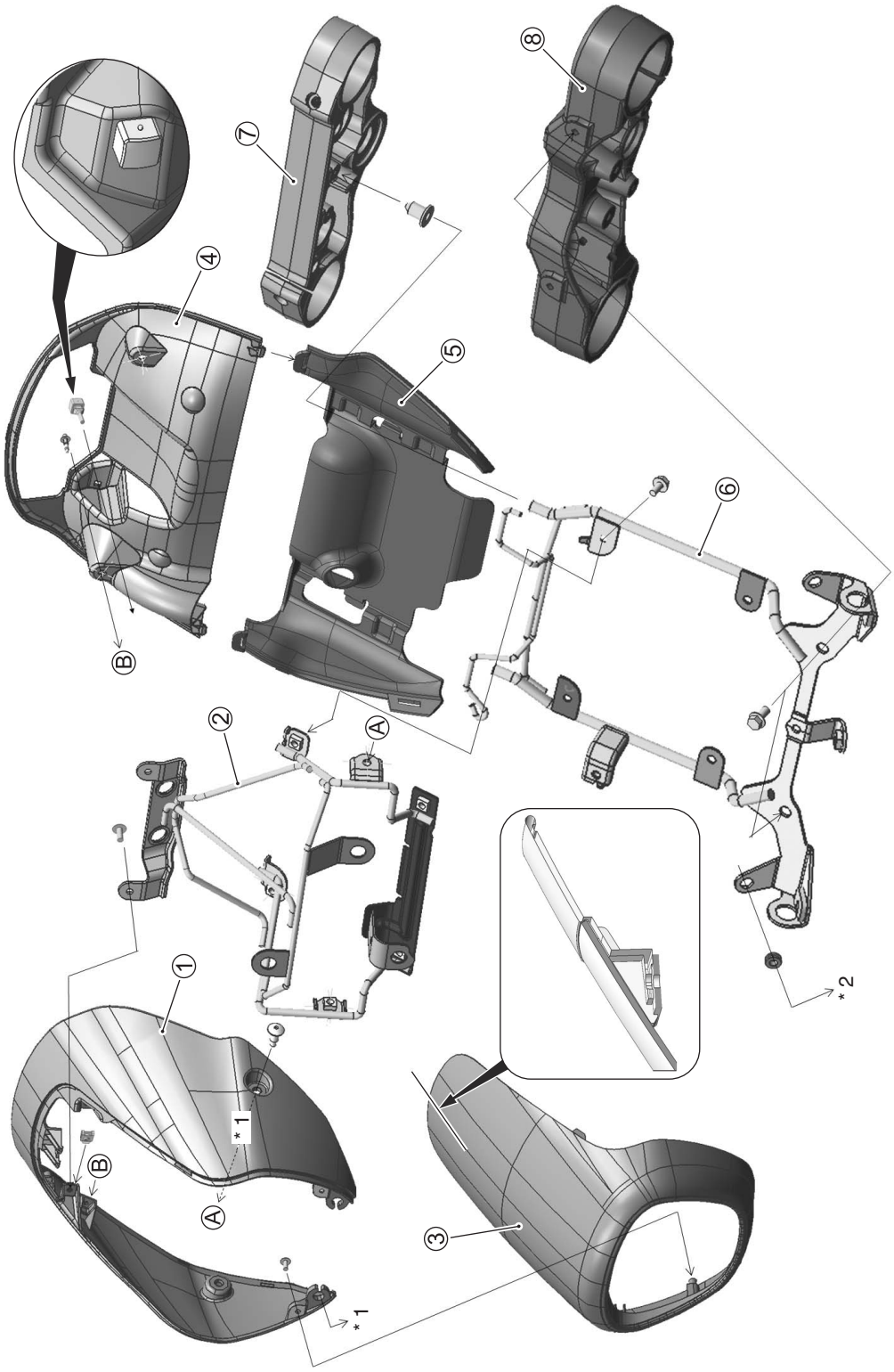

| | | | |
|---|---|---|---|
| ① | Rear fender | ⑤ | Lower side cover |
| ② | Rear fender cover | ⑥ | Cushion |
| ③ | Rear side cover | ⑦ | 10 ± 2 mm (0.4 ± 0.1 in) |
| ④ | Side cover | ⑧ | 0 ± 1 mm (0 ± 0.04 in) |

# RIGHT FRAME COVERS INSTALLATION



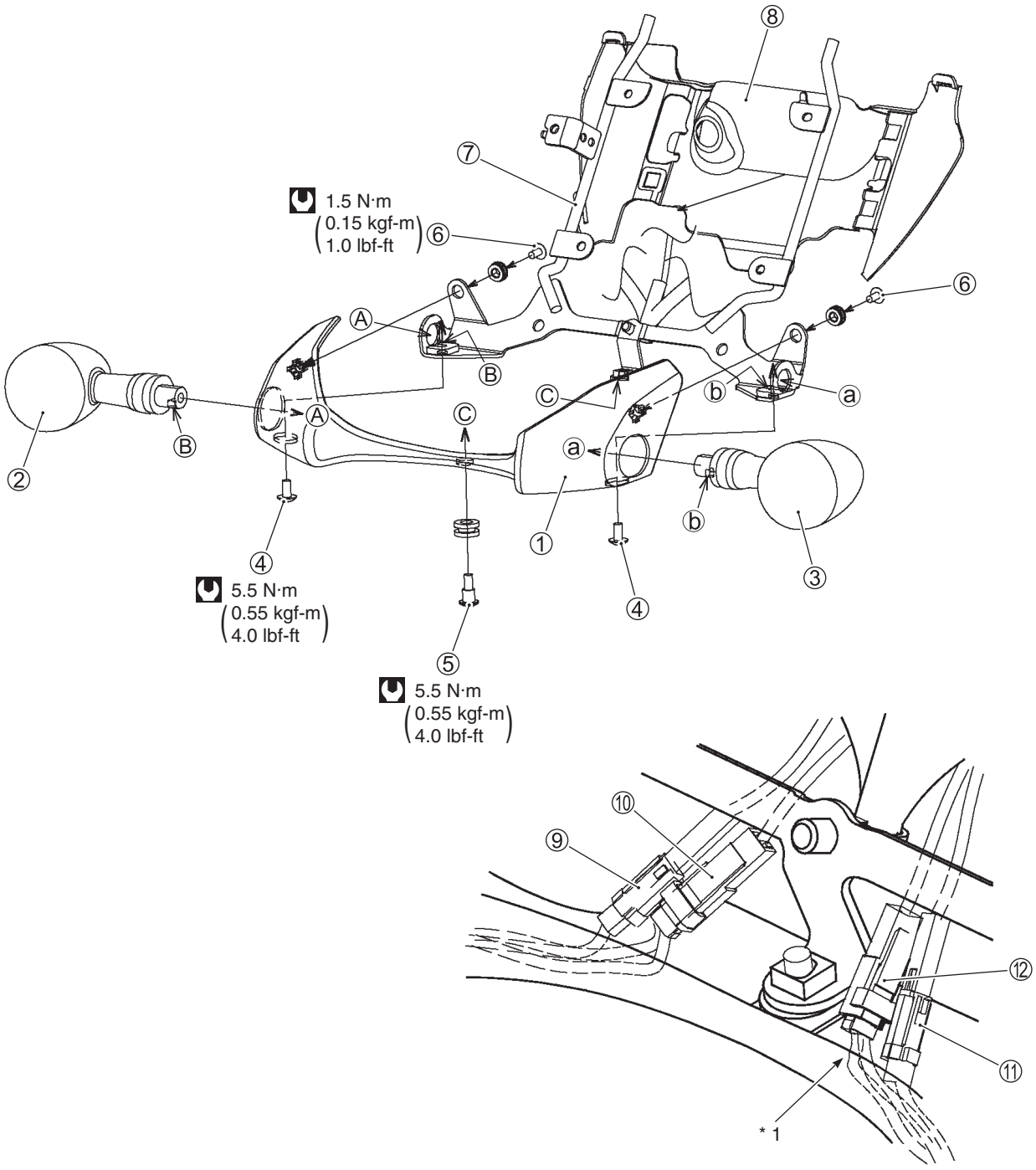

| | | | |
|---|---|---|---|
| ① | Rear fender | ⑤ | Lower cover |
| ② | Rear fender cover | ⑥ | Cushion |
| ③ | Rear side cover | ⑦ | 15 ± 2 mm (0.6 ± 0.1 in) |
| ④ | Side cover | ⑧ | 0 ± 1 mm (0 ± 0.04 in) |

# HEADLIGHT COVER INSTALLATION



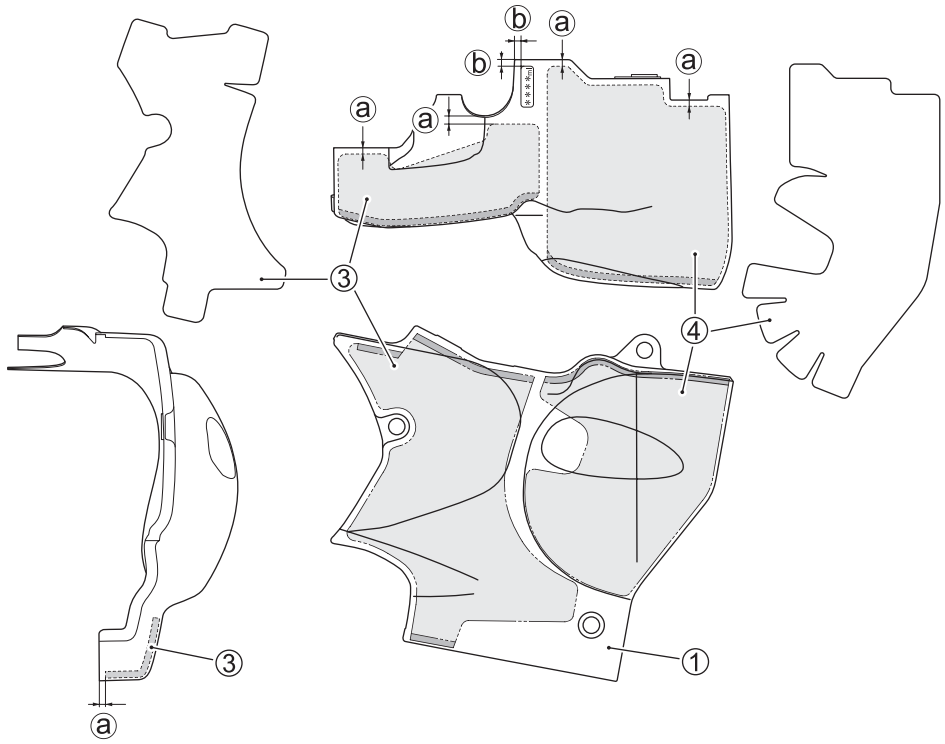

| | | | | | |
|---|---|---|---|---|---|
| ① | Headlight lower cover | ⑤ | Headlight housing bracket cover | * 1 | To headlight |
| ② | Headlight housing brace | ⑥ | Headlight cover brace | * 2 | To front cover |
| ③ | Headlight cover | ⑦ | Steering stem upper bracket | | |
| ④ | Headlight upper cover | ⑧ | Steering stem lower bracket | | |

# FRONT TURN SIGNAL LIGHT INSTALLATION



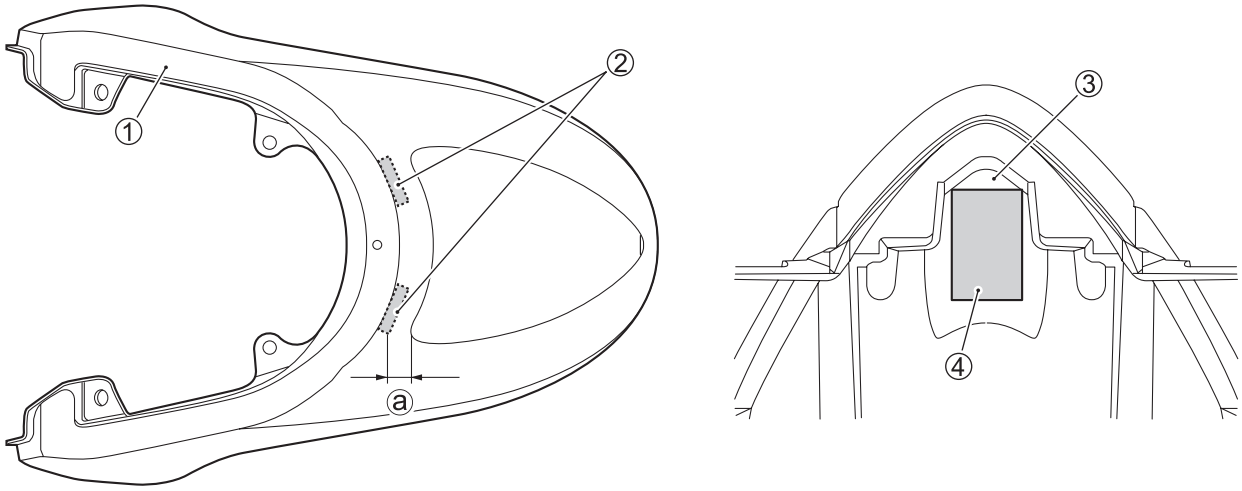

| | | | |
|---|---|---|---|
| ① | Front turn signal cover | ⑧ | Headlight housing bracket cover |
| ② | Front turn signal light (R) | ⑨ | Position light coupler (R) [For E-03, 28, 33] |
| ③ | Front turn signal light (L) | ⑩ | Front turn signal coupler (R) |
| ④ | Front turn signal light mounting screw | ⑪ | Position light coupler (L) [For E-03, 28, 33] |
| ⑤ | Front turn signal cover bolt | ⑫ | Front turn signal coupler (L) |
| ⑥ | Front turn signal cover screw | * 1 | Pass the turn signal lead wire in the groove of front turn signal cover. |
| ⑦ | Headlight cover brace | | |

# SECONDARY GEAR CASE COVER DAMPER INSTALLATION




| | | | |
|---|---|---|---|
| ① | Secondary gear case cover | ④ | Secondary gear case cover damper |
| ② | Engine oil note | ⑤ | 5 – 10 mm (0.2 – 0.4 in) |
| ③ | Secondary gear case cover damper | ⑥ | 5 – 7 mm (0.2 – 0.3 in) |

# REAR FENDER CUSHION INSTALLATION




| | | | |
|---|---|---|---|
| ① | Rear fender | ④ | Cushion |
| ② | Cushion | ⓐ | 22 mm (0.9 in) |
| ③ | Rear combination light | | |

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